

CA26N  
Z1  
- 77P01  
V. 2



# Report of the Royal Commission on the Status of Pensions in Ontario

VOLUME II

## Design for Retirement

1980

# **Report of the Royal Commission on the Status of Pensions in Ontario**

## **Design for Retirement**

Volume I }  
Volume II }  
Volume III }  
Volume IV }

Government programs and  
employer sponsored pensions

*Your Income in Retirement*  
(a Consumer's Guide)

## **Ontario and the Canada Pension Plan**

Volume V

## **Pensions for Ontario Public Sector Employees**

Volume VI  
Volume VII

## **Background Studies and Papers**

Volume VIII  
Volume IX

## **Summary Report: A Plan for the Future**

Available from Ontario Government Book Store  
800 Bay Street  
Toronto, Ontario

© Government of Ontario 1980  
Printed in Canada by the Queen's Printer  
ISBN 0-7743-5163-2 (complete set of 10 volumes)  
ISBN 0-7743-3821-0 (Volume II)

<https://archive.org/details/39201116090316>

Report of the  
Royal Commission  
on the  
Subject of  
Pensions

DEPOSITORY LIBRARY MATERIAL

**Design for Retirement**



**The Royal Commission on the Status of Pensions in Ontario**

Chairman

Donna J. Haley, Q.C.

Members

Alfred H. Cordell

Donald G. M. Coxe

Charles McDonald

Walter G. Upshall

Counsel

Marie Corbett





---

# Report of the Royal Commission on the Status of Pensions in Ontario

## VOLUME II

---

# Design for Retirement

# Design for Retirement

## Contents



## VOLUME I

Letter of Transmittal

Foreword

Introduction

1. Entering the 'Eighties
2. Aging, Retirement, and Pensions
3. Development of Retirement Income Arrangements in Canada
4. The Population Aged 65 and Over in Ontario
5. Retirement Income in Ontario from Government Programs
6. Adequacy of Benefits from Government Programs
7. Retirement Income in Ontario from Employment Pensions and Other Formal Arrangements

## VOLUME II

8. Obtaining a Pension: Coverage, Portability, and Vesting
9. Assuring the Pension Promise: Funding Employment Pensions
10. The Effect of Inflation on Retirement Income

11. Additional Limitations of Pension Plan Design
12. Recommendations for Employment Pension Design

### VOLUME III

13. Government Regulation: The Pension Benefits Act
14. Government Regulation: Taxation
15. Retirement Age
16. Women and the Provision of Retirement Income
17. Economics and Retirement Income
18. Constitutional Issues and Retirement Income

Recommendations

Selected Facts

Glossary

Index

### VOLUME IV

Your Income in Retirement - A Consumer's Guide



# Design for Retirement

## Volume II

### Contents

8. OBTAINING A PENSION: COVERAGE, PORTABILITY, AND VESTING	1
Introduction	1
Coverage	2
Consumer Survey	3
Coverage and the Registered Pension Plan	4
Overall Coverage	4
Coverage by Age and Sex	5
Eligibility	6
Coverage by Sector	6
Employment Patterns	6
Workers in Ontario Without Employment Pension Coverage	8
Coverage and the Registered Retirement Savings Plan	10
Overall Coverage	10
Coverage by Sex	12
Coverage by Age	12
Coverage by Income	13
Dual Contributors	13
Coverage by Occupation	14
Combined Coverage - Registered Pension Plans and RRSPs	14

Other Types of Coverage	16
Conclusion	16
Effectiveness of Coverage	17
Effectiveness of RRSP Ownership	17
Effectiveness of Employment Pension Plans	21
Job Mobility and the Consumer Survey	22
Conclusion	28
Portability	28
Earlier or Immediate Vesting	29
Reciprocal Transfer Agreements	31
Multi-Employer Pension Plans	33
Vesting	34
Nature of the Pension Promise	34
Introduction of the Vesting Rule	36
Sahin-Balcer Study	38
Assumptions	39
Phase I - Pensionable Service	40
Phase II - Pension Benefits	45
Phase III - Vesting Costs	55
Conclusions	62
Locking-in	70
The Commission's Proposals	77
Recommendations for Rights on Termination	78
Termination Before Vesting	78
Termination After Vesting	78
Right to Transfer Out of the Employer's Plan	80
Post-Termination Improvements	81
Entitlement on Death Before Retirement	81
Net Replacement Ratios, Annuity Income: Methodology	82
Notes	85
List of Tables	87

9. ASSURING THE PENSION PROMISE: FUNDING EMPLOYMENT PENSIONS	90
Funding and Plan Types	91
The Pension Benefits Act	93
The Role of the Actuary	97
Actuarial Funding Methods	98
Choice of Actuarial Funding Method	102
Actuarial Assumptions	104
Actuarial Valuations	110
Funding of Other Supplemental Liabilities	125
Unfunded Actuarial Liability	130
Funded Status of Trusteed Employment Pension Plans in Ontario	134
Funding Recommendations	141
Termination of Employment Pension Plans	144
Voluntary Terminations	144
Bankruptcies	147
Plant Shutdowns and Relocations	149
Plan Termination Insurance in the United States	152
Should Ontario Adopt Plan Termination Insurance?	154
Funding of Post-Retirement Adjustments to Pensions	156
Adjustments Provided Through Pension Plans - Ad Hoc	156
Adjustments Provided Through Pension Plans - Automatic	157
Adjustments Provided Through Special Adjustment Funds - Automatic	157
Adjustments Provided Outside the Pension Plan - Ad Hoc	158
Investment, Custody and Management of Pension Fund Assets	159
Trustees	159
Investment of Pension Funds	159
Conclusion	162
Recommendations	163
Notes	169



List of Tables	171
Appendix to Chapter 9: Funding Employment Pensions	172
10. THE EFFECT OF INFLATION ON RETIREMENT INCOME	208
The Problem	211
Inflation and Pension Plan Design	214
Inflation Forecasts	216
The Consumer Price Index and the Pensioner	217
Existing Inflation Protection	220
Government Programs	220
Employment Pension Plans	221
Other Arrangements	224
The Cost of Inflation Protection	224
The Individual	224
The Employer	226
The Government	227
Possible Solutions	228
The Status Quo	229
Direct Government Intervention	230
Indirect Government Intervention	234
Collective Bargaining	239
Conclusions	243
Timing and Cost	244
Individual Initiative	244
Inflation Tax Credit	245
Notes	251
List of Tables	253
11. ADDITIONAL LIMITATIONS OF PENSION PLAN DESIGN	254
Introduction	254
The Defined Benefit Plan	254
Mobility of Labour	255
Subsidies Among Plan Members	258

Funding	259
Time for Change	260
The Defined Contribution Alternative	262
Abolition of the Defined Benefit Plan	263
Conclusion	266
Form of Retirement Benefit - The Life Annuity	266
Employment Pension Plans	266
Registered Retirement Savings Plans	266
Parallel Between RRSPs and Employment Pension Plans	267
Inflation and the Form of Benefit	269
Women and the Life Annuity	271
Recommendations	273
Survivor Benefits	274
Death of Employee Before Retirement	275
Death of the Employee After Retirement	277
Level of Benefits	280
Widow's Pensions	280
Refund of Contributions	282
Possible Solutions	282
Death of an Employee Before Retirement	283
Death of the Employee After Retirement	283
The Commission's Recommendations	284
Death of Employee Before Retirement	285
Death of Employee After Retirement	285
Integration of Employment Pension Benefits	286
Integration Methods	288
Benefit Integration	288
Contribution Integration	292
Ineligible Earnings	293
Integration and Types of Plans	293
Retirement Before Age 65	293
Windfall Effects	295
Increase in the YMPE under the Canada Pension Plan	296
Increase in OAS or CPP Benefits	296
Benefit Offset Integration	297
Legislative Safeguards	297

The Commission's Position	298
Notes	302
List of Tables	303
List of Figures	303
12. RECOMMENDATIONS FOR EMPLOYMENT PENSION DESIGN	304
Chapters 8 to 11 Revisited	304
Provincial Universal Retirement System (PURS)	308
Objectives	309
Eligibility	311
Funding	312
Portability, Vesting, and Locking-in	314
Plan Features	314
Deposit Vehicle	315
Investments	316
Administration	316
Income Tax Deductibility	317
Opting-Out and Integration with Employment	
Pension Plans	317
Long-Range Impact of PURS	318
PURS in Contrast with the Canada Pension	
Plan	318
Conclusion	319
Alternative Recommendations	320
Earlier Vesting	320
Locking-In	321
Eligibility	321
Notes	323





## Chapter 8

# Obtaining a Pension: Coverage, Portability, and Vesting

### INTRODUCTION

The Commission recognizes two goals for income in retirement:

1. There should be some minimum floor of protection below which no person's income is permitted to fall.
2. Income after retirement should bear a reasonable relationship to income before retirement, so that the standard of living acquired during a person's working years can be continued.

Government has three distinct roles in the achievement of these goals.

We have seen how the anti-poverty role of the government is reflected in the provision of such programs as OAS, GIS, and GAINS, in order to ensure a minimum income for the elderly.

The government's social insurance role is reflected in the Canada Pension Plan which serves to replace a portion of pre-retirement income for virtually every member of the labour force.

At present the OAS and CPP together provide a gross payment in retirement of about 40 per cent of earnings for those at the Average Industrial Wage level. Most people would agree that without some additional income most individuals will be unable to maintain their pre-retirement living standard.

The third role of the government is not one of compulsion but an incentive role. This role has been undertaken for retirement income

primarily through income tax incentives. Thus we find tax legislation providing deductibility for employer and employee contributions to registered pension plans, individual contributions to Registered Retirement Savings Plans, and employer contributions to Deferred Profit Sharing and similar plans. There are also exemptions for tax purposes of pension income up to \$1,000, dividend and interest income up to \$1,000, and capital gains on a principal residence.

The question then is whether these incentives are effective in assisting the individual to obtain retirement income sufficient to satisfy the second goal. Or, as it is expressed in the Commission's terms of reference, we must: "examine the terms and conditions of existing retirement pension plans and arrangements, to evaluate their effectiveness in terms of present social and economic circumstances...."

#### COVERAGE

The first way of assessing the effectiveness of incentives is to look at how many people out of the possible maximum are actually included in employment pension plans, RRSPs, or other such arrangements. For this purpose it is necessary to determine the potential coverage, or "target population." Those government programs which provide a minimum floor of protection are directed at those aged 65 and over, and can be said to be universal in that they cover all those who satisfy minimum residence requirements. On the other hand, pension plans - both the Canada Pension Plan and employment pension plans - are related to work-force participation. Of these, the CPP is aimed at a larger "target population" since it covers the self-employed, while employment pensions do not. Employment pension plans therefore should be assessed against a smaller target population - that is, all workers in paid employment.

When considering retirement income beyond the minimum floor of protection, it is necessary to distinguish between the non-working and working segments of the population. We recognize that the split of CPP credits on divorce and the possible inclusion of unpaid family workers create exceptions, but shall deal with this point elsewhere. Thus, the Commission defines the target population as all those in the paid work-force between the ages of 18 and 65. This is virtually the same as the Canada Pension Plan population, and is the group to whom the net replacement approach for income in retirement is of special concern.

However since we are concerned with what retirement income the work-force may expect at retirement and because employer-sponsored plans are encouraged by tax incentives, it is important to consider these plans in detail. Before proceeding to examine how well or how badly any specific goals are being met, it would be well to state an elementary but often neglected fact about the mechanisms under discussion: the

"private pension system" in fact is a misnomer. Critics accuse it of failing to provide satisfactory coverage of the work-force, of virtually excluding part-time, short-service and young workers, and of producing less than it promises for many of those who are covered. We must ask, however, how the notion of "system" can be applied to the existing conglomeration of independent pension arrangements - all established voluntarily over a period of many years, and each reflecting a different perception of the employer's priorities. When the CPP was introduced to provide a universal compulsory plan, the Ontario government moved away from further compulsion by repealing the basic minimum plan it had mandated for all employers with 15 or more employees. Since then, employers have been free to develop employment pension plans as they wished. The results of this freedom for employment pension plans are examined closely in this and subsequent chapters. Other forms of incentives and their effects are discussed in less detail, but they serve to remind us that employment pension plans are only one way of providing replacement income in retirement.

### Consumer Survey

In approaching the question of coverage, the Commission had frequent recourse to data from its Consumer Survey (published in Volume VIII) as well as from official statistics and special studies. It was therefore important to consider how accurately the survey sample represented the Ontario population in terms of participation in the labour force and composition of the labour force itself. Relevant results are set out in Table 1.

Table 1  
Employment Status of Survey Sample Population

	Number	Per cent
In the labour force		
Employed	505	50
Unemployed	35	4
Laid off/on strike	15	2
On vacation/ill	9	1
Total	564	57
Not in the labour force		
Retired	165	17
Students	33	3
Homemakers	216	21
Other	19	2
Total	433	43
Did not state status	1	-
Total	998	100

Source Royal Commission on Status of Pensions in Ontario, Consumer Survey, Table 3



Of 564 respondents who stated they were in the work-force, 11 per cent were self-employed; 62 per cent were employed in the private sector, and 16 per cent in the public sector. Of the 505 respondents who were actually working at the time of the survey, 85 per cent were employed full-time (compared with Statistics Canada's 86 per cent of those 15 years and over). Those not working because of unemployment, temporary layoff, strikes, vacation, or illness totalled 10 per cent of the work-force. Part-time workers represented 15 per cent of the work-force (compared with Statistics Canada's 14 per cent for those 15 years and over). Roughly two-thirds of the work-force was male. Unemployment, however, was divided almost equally between males and females, reflecting a higher-than-average rate of unemployment among women.

The Commission was satisfied, therefore, that the results of the Consumer Survey were sufficiently representative to be useful in assessing the conclusions of other studies carried out for the Commission on coverage of registered pension plans and Registered Retirement Savings Plans.

#### COVERAGE AND THE REGISTERED PENSION PLAN

Coverage for our purposes involves determining how many in the target population are actually members of plans. The target population for Ontario has been carefully detailed in the study undertaken for the Commission by Harry Weitz, former head of the Pension Statistics Division of Statistics Canada (see Volume VIII). The target population for Ontario, as directed by the Commission, is as close as possible to the total work-force in Ontario and includes part-time workers. It approximates the membership of the Canada Pension Plan which, as a compulsory program, has reached 96 to 97 per cent of the work-force (Canada less Quebec). Similar coverage rates apply to Ontario workers. The Commission has followed the usual approach of excluding from the target population unpaid family workers, so that we are discussing an earnings-related entitlement to retirement income over and above direct payments from government programs.

#### Overall Coverage

The Weitz study shows that 50.4 per cent of our target population in Ontario was enrolled in employment pension plans.<sup>(1)</sup> Of these about 60 per cent were men and 40 per cent women. If we remove from these figures the public sector where overall coverage is 94.8 per cent (with female work-force participation greater than for men) we find that about 50 per cent of the men and about 22 per cent of women working in the private sector are covered by an employment pension. Some of these workers (primarily women) will be in part-time employment. Results of the Consumer Survey are much the same: 54.1 per cent of employees

worked for a present employer having a pension plan and about 49 per cent were eligible to join the plan.(2)

### Coverage by Age and Sex

Of particular interest in the Weitz study is the breakdown of coverage by age groups in contributory plans for both public and private sectors. As the data were obtained from tax deduction statistics, no similar data are available for non-contributory plans. Weitz suggests that more workers in younger ages would be in non-contributory plans since membership is usually automatic upon employment. The statistics in Table 2 are from the Weitz study.

Table 2  
Participation in Contributory Employment Pension  
Plans in Ontario, by Sex and Age Group, 1976

	Covered workers		
	Male	Female	Both
	(Per cent)		
18-24	29.1	24.6	27.0
25-34	54.8	47.5	52.0
35-44	63.3	34.8	52.3
45-54	67.4	45.3	59.3
55-64	80.5	44.0	68.1

Source Royal Commission on the Status of Pensions in Ontario, H. Weitz, "Pension Coverage and its Potential in Ontario."

The higher percentages for the combined age group 45 to 54 and 55 to 64 probably reflect the fact that job mobility declines with age, so that older employees are more likely to fulfil service conditions for eligibility, and that concern for pensions is more widespread in firms with relatively more workers over age 45. The male coverage trend increases steadily from 18 to 64. Female coverage falls off between ages 35 to 44, reflecting both the effect of child-rearing and the prevalence of part-time and short-service work patterns among women. The slight decline in female coverage between ages 55 and 64 may be a reflection of women joining the work-force at later ages when they are no longer eligible to join a pension plan or are disinclined to do so where joining is voluntary. Weitz also points out that the higher rate for women between 25 and 34 as compared with the 35-44 group may be an emerging pattern in which fewer women cease work completely for child-rearing. However it may also reflect postponed child-bearing and a consequent increase in the number of women who meet eligibility requirements for pension membership (age or service) before they leave the labour force.

## Eligibility

Participation in a pension plan is not always a condition of employment, although in non-contributory plans membership is usually automatic. All the larger contributory plans in the public sector are compulsory. In the private sector about two-thirds are compulsory. Most private sector plans have some age or service requirement for entry. Weitz notes that such requirements usually are service of a year or less.

No statistics are available to show how many employees refuse to join voluntary plans. Weitz notes that a study made before the introduction of the CPP revealed about 2 per cent not joining when eligible. Our Consumer Survey shows ranges of from 1.1 per cent to 2.9 per cent of eligible employees refusing to join.(3) The information is inconclusive and the Commission is of the opinion that these numbers could vary widely with economic circumstances and according to employee perception of pension plans as good investments.

In general Weitz doubts that eligibility provisions significantly inhibit participation, although membership is confined largely to employees between 18 and 65.

## Coverage by Sector

We have noted that coverage in the public sector is almost complete; accordingly, the lack of coverage is mainly in the private sector. Of interest therefore is the incidence of coverage in various industries and occupations. The Commission's Consumer Survey provided some indication of coverage by industry, though some caution should be exercised in considering the results because of the small cells of the various industries in the sample.(4)

The figures in Table 3 do confirm that highly unionized industries such as mining, forestry, transportation, and manufacturing are likely to provide pensions while wholesale and retail trade operators who tend to be small and utilize part-time labour are not. Average coverage figures therefore are meaningless for a perception of the situation in a particular type of employment. Plans are also concentrated among large employers. In Canada in 1976 there were 600,000 business entities but only 16,000 registered pension plans. A similar ratio would apply to Ontario.

## Employment Patterns

Most part-time workers are not included in employment pensions in either public or private sectors. Part-time workers are defined here as those working less than 30 hours a week regardless of the regularity of employment. Nearly 10 per cent of paid workers are classified as

Table 3  
Pension Entitlement or Expectation, by Industry of Most Recent Employment

Industry	Number interviewed(a)	Receiving/expecting pension	
		(Number)	(Per cent)
Agriculture	32	7	21.9
Forestry	11	7	63.6
Fishing and trapping	-	-	-
Mines, quarries, oil wells	17	16	94.1
Manufacturing	201	97	48.3
Construction	36	10	27.8
Transportation, communication, utilities	61	29	47.5
Wholesale trade	23	4	17.4
Retail trade	122	22	18.0
Finance, insurance, real estate	43	14	32.6
Community, business, and personal services	151	39	25.8
Government, all levels	149	90	60.4
Self-employed	25	3	12.0
Other	30	6	20.0
Total	901	344	38.2

a Responses to questions (total interviews: 903).

Source The Royal Commission on the Status of Pensions in Ontario, Consumer Survey, unpublished data.



part-time; most are women. Table 4 shows the incidence of part-time employment for males and females in both public and private sectors.

A little under 4 per cent of men work part-time in both sectors combined. Of women employed in the public sector nearly 14 per cent work part-time; and of those in the private sector 20 per cent are part-time. The exclusion of part-time workers from employment pension plans primarily affects female workers. An indication of that relationship can be found in the higher utilization of GIS by women 65 and over compared to men.

Of importance for both men and women is that coverage moves up significantly only in the later working years (Table 2). Since benefit accrual over 25 to 30 years is assumed in most plans, a coverage figure of even 80 per cent between ages 55 and 64 may not mean a correspondingly high level of pension entitlement.

#### Workers in Ontario Without Employment Pension Coverage

Participation in employment pension plans in Ontario has grown significantly in absolute numbers from 1,222,000 at the beginning of 1969 to over 1,600,000 in 1978. However this growth is little more than a reflection of the increase in paid workers. As a result, the proportion of all paid workers in Ontario participating in employment pensions has remained constant at about 47 per cent.

The Canada Pension Plan was introduced in part to solve some of the coverage problems of the other 53 per cent but in 15 years it does not appear that there has been much progress through coverage in employment pension plans towards the goal of replacement income in retirement.

Weitz identifies the 2,101,000 workers in Ontario in 1976 without employment pension coverage as follows:

---

Unpaid family workers		34,000
Unemployed		242,000
Self-employed		271,000
Uncovered paid workers		1,554,000
Public sector	33,000	
Men	29,000	
Women	<u>4,000</u>	
Private sector	1,521,000	
Men	779,000	
Women	<u>742,000</u>	
		<u>2,101,000</u>
Total labour force, 1976		3,931,000

---

Table 4

Paid Workers Age 18-64 by Sector, Full and Part-Time, 1976

Employed paid workers (18-64)	Male		Female		Both sexes	
	(Thousands)	(Per cent)	(Thousands)	(Per cent)	(Thousands)	(Per cent)
Public sector						
Total(a)	391		263		652	
Part-time	10	2.5	36	13.7	46	7.1
Full-time	380	97.1	228	86.7	608	93.2
Private sector						
Total	1,578		986		2,566	
Part-time	61	3.9	198	20.1	259	10.1
Full-time	1,517	96.1	788	79.9	2,305	89.8
Both sectors						
Total	1,969		1,249		3,218	
Part-time	71	3.6	234	18.7	305	9.5
Full-time	1,898	96.3	1,015	81.3	2,913	90.5

a Totals may not add because of rounding.

Source The Royal Commission on the Status of Pensions in Ontario, H. Weitz, "Pension Coverage and its Potential in Ontario."

Of very great significance is the fact that the uncovered paid workers represent nearly 75 per cent of the over two million workers in Ontario not in an employment pension. In addition, most of the unemployed group are candidates to swell the ranks of the uncovered paid workers. While people are unpaid family workers or unemployed they are not covered by the Canada Pension Plan and therefore do not form part of the Commission's target work-force. Of the self-employed who are in the Canada Pension Plan, many are said to avail themselves of the opportunity provided by Registered Retirement Savings Plans. Similarly it is argued that many employees who are not in pension plans are in RRSPs and so are covered for retirement income. We therefore examined the extent of coverage by RRSPs and its effect on overall coverage for paid workers.

#### COVERAGE AND THE REGISTERED RETIREMENT SAVINGS PLAN

Like the registered pension plan, the RRSP is earnings-related. For tax purposes the registered pension plan seems to be considered the prime vehicle for retirement income, with RRSPs, Deferred Profit Sharing, and similar plans as adjuncts. Income tax rules allow contributions to RRSPs to the extent the maximum deduction is not used for pension plan contributions. The original purpose of the RRSP was to provide an incentive for retirement savings to the self-employed and others without access to a pension plan. However the great growth in RRSPs in recent years has included "dual contributors," that is, contributors to both a registered pension plan and an RRSP, to the extent of 40 per cent of all contributors in 1976. Coverage by RRSPs therefore can be assessed against the Commission's "target population" of paid workers in Ontario.

A study of RRSPs prepared by Harry Weitz for the Commission is published as a background paper in Volume VIII. Following are some highlights from that study.

In 1976, 10.5 per cent of the 12 million tax filers in Canada contributed to RRSPs a total of over \$2 billion. The Ontario figure for the same year was slightly higher at 10.7 per cent. Table 5 provides details of RRSP contributions by sex and income groups.

#### Overall Coverage

RRSP participation by Ontario tax filers increased from 89,000 in 1969 to over half a million in 1976. With participation encouraged in 1972 and later by increased contribution limits, Ontario participation has continued to grow at about 20 per cent a year.

Participation alone however is not a suitable measure for coverage because of the cash-out privileges allowed to RRSP holders. The key question is whether RRSPs are seen by the contributor mainly as savings

Table 5

Proportion of Tax Filers(a) in Ontario Who Contributed to RRSs, by Sex and Income Class, Selected Years, 1969-1976

Income class (Dollars)	1969			1973			1975			1976		
	Men		Both sexes (Per cent)	Men		Both sexes (Per cent)	Men		Both sexes (Per cent)	Men		Both sexes (Per cent)
	Women	Men		Women	Men		Women	Men		Women	Men	
Under 2,000	.2	.2	.2	.2	.2	.2	.2	.3	.2	.1	.2	.1
2,000- 2,999	.3	.3	.3	.8	.8	.7	.4	.5	.5	.5	.4	.5
3,000- 3,999	.6	.6	.6	1.0	1.0	1.1	.8	1.1	.9	.6	1.1	.8
4,000- 4,999	1.0	1.0	1.0	1.9	1.9	1.7	1.2	1.8	1.5	1.5	1.9	1.7
5,000- 5,999	1.5	2.5	1.8	2.3	2.3	2.6	2.2	1.4	1.9	2.7	2.7	2.7
6,000- 6,999	1.8	2.6	1.9	3.8	3.8	4.7	2.9	3.7	3.3	3.0	3.8	3.4
7,000- 7,999	2.3	4.2	2.6	5.1	5.1	6.0	5.1	4.9	5.0	5.1	3.1	4.2
8,000- 8,999	2.9	5.8	3.2	6.5	6.5	7.3	7.8	5.4	6.6	6.7	7.0	6.8
9,000- 9,999	3.1	7.6	3.5	7.5	7.5	8.2	8.3	5.6	6.6	8.2	6.6	7.4
10,000-14,999	7.2	13.8	7.7	11.8	11.8	12.7	15.8	11.1	12.1	14.7	11.5	12.4
15,000-19,999	17.2	14.5	17.0	25.5	25.5	26.1	30.7	20.8	21.9	30.5	20.0	21.5
20,000-24,999	24.0	16.2	23.5	38.4	38.4	37.9	37.2	35.2	35.4	38.9	30.9	31.7
25,000 and over	36.3	12.8	34.6	55.3	55.3	53.0	33.4	53.8	52.2	43.9	52.1	51.5
Total	3.2	1.3	2.5	9.4	9.4	7.0	4.9	12.2	9.1	6.1	14.1	10.7

a Includes all persons in Ontario who filed an income tax return whether or not they paid income taxes.

Source Royal Commission on the Status of Pensions in Ontario: H. Weitz, "Contributors and Contributions to Registered Retirement Savings Plans in Ontario."



for retirement or as tax shelters. No data on cash-outs are available in any comprehensive form. Working from asset accumulation data for the end of 1977 Weitz estimates that, of the 10 billion dollars paid into RRSPs since their inception, between \$6 and 7 billion were still held in RRSP accounts, for an indicated cash-out rate of between 30 and 35 per cent. Respondents to the Commission's Consumer Survey who had RRSPs stated that about 80 per cent were intended for retirement income purposes.(5) Allowing for the difference between expectation and actuality, a 30 per cent cash-out rate would appear to be a reasonable estimate from the limited data. On that basis it may be concluded that RRSPs are an important aspect of coverage for retirement income.

(Even with more precise data, any forecast of cash-outs based on the past few years' experience would be necessarily tentative. The only time limit on the use of an RRSP purely as a tax shelter is age 71, as specified in the Income Tax Act and the actual conversion of funds into an annuity or RRIF; until then, the holder's intentions cannot be "measured" with any certainty. Future changes in such factors as inflation, interest rates, and tax policy could have profound effects on cashing-out of RRSPs as well as the level of new contributions. On the other hand, we are aware that the cash-out rate noted by Weitz is accounted for - perhaps in large part - by the use of plan assets to purchase annuities, rather than for immediate consumption.)

#### Coverage by Sex

Female participation in RRSPs has increased faster than that of men in recent years. Between 1975 and 1976, for example, the number of male RRSP contributors in Ontario increased by 19 per cent while the number of women increased by 25 per cent.(6) Average contributions of women were lower than those for men, however, perhaps reflecting lower full-time wage levels for women but also their higher participation in part-time employment. An interesting trend is shown in the age distribution of women RRSP participants. In 1976 those under 30 represented nearly 19 per cent of women participants. The age group 25-29 accounted for most of the increase in participation which took place between 1969 and 1976, from 4.9 per cent in 1969 to 12.7 per cent in 1976. In 1976 14.1 per cent of male tax filers and 6.1 per cent of female tax filers in Ontario were contributors to RRSPs.

#### Coverage by Age

Most contributors to RRSPs are between ages 25 and 65, although in 1976, 4.1 per cent were between 18 and 25. At younger ages, up to age 30, female participation has been greater than that of men since 1975. Between ages 25 and 65, male participation tends to remain fairly constant, while female participation shows a definite dropping off after age 30, resuming again after age 44.(7)

As participants approach retirement age they tend to put more into RRSPs. In 1976 for Ontario contributors under age 40 the average contribution was well below the provincial average.

#### Coverage by Income

For both sexes, participation is greatly affected by income levels, since those having more disposable income are more likely to institute an RRSP. From 1969 onward the largest number of participants was in the income group \$10,000 and over. In 1976, 92.3 per cent of male participants were in this category as were 68.5 per cent of female participants. Among female participants, 27.2 per cent had incomes between \$5,000 and \$10,000. For women in that range - or generally between the minimum wage and the CPP ceiling - the RRSP was a significant part of their savings pattern. In the case of men, only 6.6 per cent of participants were in that income bracket.(8) Average contributions also vary by income group, with those in the higher income groups (\$20,000 and over) contributing in 1976 above the provincial average of \$1,612, though even at the highest levels the average contribution was below the maximum allowed for tax purposes. In the upper middle income categories women tended to contribute more to RRSPs than men, possibly because of their proportionately lower participation rate in employment pension plans and a correspondingly larger amount available for RRSP deductions for income tax purposes.

The Consumer Survey similarly found a direct relationship between level of income and likelihood of having an RRSP. For example, the incidence of RRSPs among professional respondents (21.9 per cent) was double that of the group as a whole (11.9 per cent).

#### Dual Contributors

Because tax policy permits a person to contribute to both a registered pension plan and an RRSP it is important in assessing coverage of the target population to identify dual contributors. Taxation statistics unfortunately do not reveal how many RRSP holders are also in non-contributory pension plans. Accordingly, the following analysis suffers from a potentially significant lack of data. Nevertheless, the figures for contributory plan members are important in themselves, and may justify some cautious extrapolation for all employment plans.

Of the 525,000 persons in Ontario reporting RRSP contributions for 1976 tax purposes nearly 40 per cent were dual contributors, leaving 318,000 persons who had made RRSP contributions only. Most of the dual contributors had incomes of \$15,000 and over. Generally speaking, the combined average contribution of dual contributors to RRSPs and pension plans was higher than the average for those having RRSP contributions only. At most income levels the proportion of income paid out for both RRSPs and employment pensions ranged from 11 per cent to 14 per cent,

though it fell below this range in some income classes. Those with RRSP contributions only contributed 8 to 10 per cent of income.(9)

### Coverage by Occupation

Self-employed professionals and business proprietors are most typical of that part of the labour force for which the RRSP program was primarily designed. Among these occupational categories the degree of participation is relatively high; the highest is found among professionals.(10) In aggregate, slightly over 53 per cent contributed to an RRSP in 1976, the proportions ranging from 81 per cent for doctors to around 27 per cent for entertainers and others. Business proprietors participated to a much lesser degree, with just over 16 per cent contributing to an RRSP. It could be speculated that the perpetuation of the business enterprise represents the primary intended source of retirement security for people in the latter group.

Professionals in 1976 contributed the highest average amount at \$3,743, or more than twice the provincial average. Also among the highest contributors were farmers and fishermen at \$2,089 and salesmen at \$2,092. Businessmen contributed an average of \$1,822.

For 300,000 persons in Ontario in 1976 the RRSP was the primary vehicle for retirement income savings (disregarding those in non-contributory pension plans). Participation is high in those groups for which the plan was originally designed and especially among professionals, who tend to be in the higher income levels. Even for this group, contribution averages are well below the maximum deduction allowed for income tax purposes. Participation by women has increased greatly during the 1970s, though their average contributions are smaller than for men. As people approach retirement, their average contributions increase. Highest average contributions are made by persons 40 and over, with each succeeding age group contributing more except for women between 60 and 64. Participation is very much geared to income, with 86 per cent of Ontario contributors in 1976 having incomes of \$10,000 a year or more, and nearly two-thirds with incomes of \$15,000 or over.

### COMBINED COVERAGE - REGISTERED PENSION PLANS AND RRSPs

Earlier in this chapter we discussed the categories of workers in Ontario not covered by an employment pension plan in 1976. Of these 271,000 were self-employed and 1,554,000 were paid workers. It is sometimes argued that when RRSP participation is added to employment pension participation, most of the work-force is covered by some formal vehicle for retirement income.

From the RRSP study (Weitz) we find that the number of participants in RRSPs for categories other than employees was 83,981 in 1976.(11)



This represents only 31 per cent of the 271,000 self-employed of our target work-force, and leaves 187,019 uncovered.

Also from the Weitz study we find that 444,163 paid employees participated in RRSPs. Dual contributors represented 40 per cent of those contributing to registered pension plans. As noted, no account has been taken of those in non-contributory plans who may be among those shown as making only RRSP contributions. Weitz suggests that these might account for 10 per cent of RRSP contributors. Therefore we can assume for rough estimate purposes that 50 per cent of the RRSP employee group or 220,581 are dual participants. If we deduct these from the uncovered paid workers of the target work-force, there are 1,333,419 paid workers who belong neither to an employment pension plan nor an RRSP. If we add to these the 187,019 self-employed not in an RRSP, we have a total of 1,520,438 or nearly 42 per cent of the Commission's target work-force not covered by an employment pension or an RRSP. Using rounded figures we obtain the following picture:

---

Ontario labour force, 1976			3,931,000
Commission's target work-force (all paid workers and self-employed workers, 1976)			<u>3,655,000</u>
Self-employed workers	271,000		
Less numbers having an RRSP (31 per cent)		<u>84,000</u>	
Balance uncovered			187,000
Paid workers not in a registered pension plan		1,554,000	
Less those having an RRSP (with deduction for those also in an RPP - 50 per cent)	441,000	<u>220,500</u>	<u>220,500</u>
Balance uncovered			<u>1,333,500</u>
Total number of workers not in RRP or RRSP			1,520,500
Percentage of Commission's target work-force uncovered			41.6 per cent

---

The results are clearly based on rough estimates, each subject to considerable variation, but the overall indication from the figures cannot be denied: there were about a million and a half people working in Ontario in 1976 who were neither members of registered pension plans nor holders of an RRSP. Their earnings in most cases are relatively low - certainly below the industrial average, and probably well under that figure. As a whole, the uncovered segment of the work-force



therefore has a high risk of becoming dependent on government support programs such as GIS and GAINS. This group has little hope, moreover, of attaining by retirement age a net replacement income that would enable them to maintain to any reasonable extent their pre-retirement standard of living. Clearly then, the 41.6 per cent "uncovered" figure has important implications for public policy in Ontario.

#### OTHER TYPES OF COVERAGE

We examined in the previous chapter other formal arrangements for retirement income which might fill a gap for some of these million and a half workers. Among the arrangements mentioned were Deferred Profit Sharing Plans. However the number of DPSPs is so small in relation to the total uncovered that they can be no answer to the problem. For example, the Trust Companies Association of Canada (Brief 361) estimates that the number of DPSPs administered by trust companies in 1976 was only 2,303. Membership will vary, but the total DPSP membership will still be insignificant in relation to the uncovered group. It is true that people are also providing for retirement by informal arrangements. Business people for example will build up their enterprises to provide for their needs in retirement. The Consumer Survey revealed that the most favoured method of accumulating assets for retirement was the personally-owned home. Even in the income ranges from under \$6,000 to \$14,000 about 53 per cent of the respondents expected to own a house at retirement which could be used in some way to provide retirement income.<sup>(12)</sup> However it may be that the increasing cost of real estate (which appears to be increasing faster than wage levels) will make such expectations less realistic. The Commission is not convinced that society can rely on this type of informal arrangement for the fulfilment of either of the goals we set out at the beginning of this chapter.

#### CONCLUSION

The coverage problem is too serious to be ignored. So much discussion has centred around registered pension plans and RRSPs that little attention has been given to the plight of those who can never hope to be covered by any formal vehicle until they become eligible for Old Age Security and CPP benefits. In the Commission's view, no tinkering with the formal vehicles as they now exist can make any worthwhile inroads on the coverage problem. The answer lies in other directions.

Setting aside for the moment the problem of the million and a half members of Ontario's working population who are not covered at all by formal retirement arrangements, we must consider the effectiveness of those plans for the 58 per cent who are covered by them.

## EFFECTIVENESS OF COVERAGE

Coverage alone is not a useful measure of the effectiveness of either employment pension plans or RRSPs. It is merely a statement of the number in the current work-force who are participating at any given time in one or other of the vehicles. For a meaningful measurement of effectiveness it is necessary to ascertain the amount of retirement income the participants are likely to receive. That amount may then be assessed by reference to the goal of reasonably approximating pre-retirement living standards. In attempting this analysis, the Commission has concentrated on the situation of those who earn at or below the Average Industrial Wage - about \$14,000 in 1979. It is in this area that government policy decisions are most important. For those normally earning more than the average, our "net replacement ratios" may or may not be applicable. From a practical viewpoint, however, the Commission must assume that any retirement income system which met our criteria for people at the Average Industrial Wage level would also hold significant benefit for those in better-paying occupations. It is reasonable to assume as well that workers with a history of high earnings will approach retirement with various non-pension assets that will enable them to continue their pre-retirement standard of living. Accordingly, our examination of the effectiveness of employment pensions and RRSPs will employ the same net replacement concept already applied in assessing the adequacy of benefits from government programs, using as examples persons at various income levels up to and including the industrial average.

## EFFECTIVENESS OF RRSP OWNERSHIP

RRSP ownership is voluntary. A plan can be started at any time and terminated at any time before the end of the year of the owner's 71st birthday. In plans other than insurance company plans involving the purchase of life insurance, contributions need not be made regularly or in any set amount up to the limits of income tax deductibility. As early as age 60 the owner may receive an annuity or other permitted benefit purchased with the accumulated contributions and interest. Obviously an RRSP will have most value when contributions have been made regularly, over the longest period possible. Finally, as with all plans from which annuities are purchased from accumulated funds, the amount of annuity income is not known in advance, since it depends on the interest rates in effect at the time it is purchased. Because of the variable contributions, flexible periods of accumulation, indeterminate benefits, and the possibility of cash withdrawal, there can be no assurance of the effectiveness of an RRSP to provide future retirement income. Hence, RRSP ownership is an unreliable indicator of income replacement. With that reservation in mind, it is still useful to take some examples assuming regular contributions. The annuity income at retirement purchased from the accumulated contributions coupled with the "available income" from government programs can then be assessed in terms of net replacement ratios.

The example is simply constructed and ignores changes in wage levels during work history by using the same contribution rates throughout. We use two cases. For Case 1 we will take 25 years as the accrual period, and assume contributions at the average levels for 1976 as shown in the Weitz study. Interest will be compounded annually at 8 per cent throughout. Table 6 shows the monthly payments for males and females which would be payable at age 65, based on typical annuity rates in 1979.

Table 6

Case 1, Single Life Annuity at Age 65, Monthly Payment from Sample RRSP Contributions for 25 years at 8 per cent

	Income level \$5,000 (Dollars)	Income level \$9,000 (Dollars)	Income level \$14,000 (Dollars)
Annual contributions(a)	537	954	1,133
Capital fund accumulated including interest compounded annually at 8 per cent for 25 years	39,258	69,743	82,829
Monthly payment single life annuity no guarantee			
Male	418.10	742.76	882.13
Female	384.34	682.78	810.90

a Averages for RRSP contributors by income group, 1976; from background paper, H. Weitz, "Contributors and Contributions to Registered Retirement Savings Plans in Ontario," Table 12.

Source Prepared for the Royal Commission on the Status of Pensions in Ontario by L. E. Coward.

Table 7

Case 2, Single Life Annuity at Age 65, Monthly Payment from Sample RRSP Contributions for 15 Years at 8 per cent

	Income level \$5,688 (Dollars)	Income level \$10,400 (Dollars)	Income level \$13,746 (Dollars)
Annual contributions (20 per cent)	1,137.60	2,080.00	2,749.20
Capital fund accumulated including interest compounded annually at 8 per cent for 15 years	30,671	56,476	74,647
Monthly payment single life annuity no guarantee			
Male	326.65	601.47	795.00
Female	300.27	552.90	730.79

Source Prepared for the Royal Commission on the Status of Pensions in Ontario by L.E. Coward.



For Case 2 we vary the example to reflect what many see as a more realistic approach to retirement income planning. In the early years workers at the levels postulated are likely to have pressing demands on their income to purchase a house and raise a family. Therefore we will assume contributions made to an RRSP only in the last fifteen years prior to age 65, assuming annual income at the minimum wage for 1979 (\$5,688), the YMPE under the CPP (\$10,400), and the AIW for 1978 (\$13,746) and continuing constant at the maximum permitted (20 per cent of income) for fifteen years. Table 7 shows the monthly income which would be derived at age 65 on these assumptions, again based on 1979 annuity rates.

From the tables we can see that the annuities developed over the long term are only slightly larger than those for the shorter period. The difference lies in the contribution rates. Those in Case 1 reflect actual average contributions for 1976 at the income levels chosen. Those in Case 2, at 20 per cent, are clearly counsels of perfection; they are used to put the best possible case for the RRSP. In applying the net replacement ratio approach we will use the annuity amounts in Case 1 for males and the income levels for Case 2.

When we examine the net replacement ratios in Table 8 we see at once that all of the ratios are over 100 per cent and that in all but one case they exceed 150 per cent. It should be recalled that these ratios are stated in terms of "available income" taking into account payments from government programs, including the Canada Pension Plan, Ontario Tax Credits, and income tax age-related exemptions. Details of the method used for the calculation can be found at the end of this chapter.

Case 2 assumptions provide somewhat less annuity income than Case 1 and therefore for Case 2 annuities one could expect ratios slightly smaller but still well over 100 per cent for all groups. Thus if accumulation can be made at the levels assumed in Case 1 or Case 2 an arrangement producing these levels will satisfy the goal of continuing pre-retirement living standards into retirement. It is true that the ratios apply to the year immediately following retirement; without any inflation protection the value of the replacement income will decline with increases in the Consumer Price Index. The same problem faces all those in retirement and is met only in part by the full indexing of government benefits. Other aspects of declining purchasing power are addressed in a later chapter, "The Effect of Inflation on Retirement Income."

On the basis of the above examples, the RRSP might be said to have the potential for providing sufficient retirement income without recourse to any other scheme such as an employment pension plan. The design meets the net replacement criterion. The question then becomes one of whether the design is being utilized in a way which in fact will provide the necessary replacement income.



Table 8  
Net Replacement Ratios: 1979 Post-Retirement Available Income from Government Programs and Selected Annuities (Males) Expressed as a Percentage of 1978  
Pre-Retirement Disposable Income

	\$5,688 pre-retirement income			\$10,400 pre-retirement income			\$13,746 pre-retirement income		
	1978 pre- retirement (Dollars)	1979 post- retirement (Dollars)	Replacement ratio (Per cent)	1978 pre- retirement (Dollars)	1979 post- retirement (Dollars)	Replacement ratio (Per cent)	1978 pre- retirement (Dollars)	1979 post- retirement (Dollars)	Replacement ratio (Per cent)
Single worker Age 65 on January 1, 1979	5,224	8,358	160.0	7,843	12,018	153.2	10,029	13,181	131.4
Married worker Both persons attain age 65 on January 1, 1979	5,246	10,832	206.5	8,431	14,742	174.9	10,444	15,947	152.7

Source Royal Commission on the Status of Pensions in Ontario.

If we look at the assumptions for Case 1 we see that one of the basic assumptions is the continuance of the average level of contribution over the entire working life. The averages, taken from the Weitz study, require in excess of 10 per cent of wages at the lower levels and 8 per cent at the Average Industrial Wage. In addition there will be a mandatory contribution to the Canada Pension Plan (1.8 per cent on earnings up to the YMPE and over the basic exemption) equivalent to about 1.5 per cent at the minimum wage level. A total contribution of 11.5 per cent of the minimum wage is clearly too large a percentage to expect a worker to choose on a continuing basis for postponed consumption when total income is at best barely adequate for current requirements. Even at the YMPE level and with a starting age of 40, the required contribution is probably much higher than most people would be willing or even able to make.

The Case 2 assumptions recognize that there is greater choice for savings later in the working career when demands on current income for family formation and housing acquisition are less. However, to provide replacement in retirement at pre-retirement levels over a period of only 15 years would require contributions at 20 per cent plus Canada Pension Plan contributions. This level of contribution would be virtually out of the question at lower income levels and difficult to maintain at the Average Industrial Wage. Even at a lower level, say half that rate, the discipline required to make regular contributions and the high likelihood of cash withdrawal for unforeseen circumstances lead the Commission to conclude that the RRSP, while a flexible and useful vehicle for individual saving, is not in itself the answer to providing adequate income replacement in retirement. It is clear from the Weitz study that relatively few are able or wish to take full advantage of the RRSP opportunity. This vehicle therefore will not assist greatly, either in providing sufficient replacement income above the government programs or in extending coverage to the one and a half million uncovered workers of the Commission's target work-force.

If the only drawback to the effective use of the RRSP were the size of the contributions required, one solution might lie in the employment pension plan, where the employer's contribution can add greatly to the value of the benefit, and the employee's contribution ranges from 5 or 6 per cent down to zero in non-contributory plans. As we shall see, however, certain other drawbacks of RRSPs have parallels in employment pension plans. Continuity of participation and preservation of credits up to retirement are two such problems; another is the benefit level, which may be much lower than those shown in our RRSP examples.

#### EFFECTIVENESS OF EMPLOYMENT PENSION PLANS

It is one thing to be a member of an employment pension plan, but quite another to be entitled to a pension from the plan at retirement. We have noted that pensions are long-term arrangements; therefore the

duration of membership is vital to effectiveness of any plan. Except in multi-employer plans and certain reciprocal arrangements, a change of employer will terminate membership in the pension plan of the former employer. Therefore we must consider the effect of job mobility on pension entitlement.

### Job Mobility and the Consumer Survey

The Commission sought to obtain a picture of job mobility in Ontario by inquiring about the work history of individuals in the Consumer Survey. Of all those interviewed, 91 per cent reported that they had been employed at some time. These respondents were asked a series of questions about their job history, extending through the most recent seven jobs held. A careful study of this report will give the reader a good picture of representative work histories in Ontario. Some pertinent results are:

The average age for entering the labour force was 20.

Respondents on the average had held 3.2 jobs.

The more jobs people had held, the less likely they were to leave the present job.

The majority leaving a job who did not then leave the labour force found work within one month.

The incidence of people leaving the labour force appears to decrease over the work life, from almost one-third leaving after their first job to one-fifth leaving after their sixth job.

Table 9 shows, for example, that of the 513 respondents who had held three jobs up to the time of the survey 108 or 21.1 per cent still held the third job. Of those no longer in the third job, 254, or 49.6 per cent of the original 513, stayed in the work-force, and 150 or 29.2 per cent left the work-force. Of those leaving the work-force, 76, or 14.8 per cent of the original 513, had not returned to work and had no present intention of doing so. For those who had held three jobs the average length of time spent in each job was 4.74 years.<sup>(13)</sup> The data cannot give a complete picture because the worklife patterns of the respondents are not complete; and, because of the age distribution of the survey sample, many of the respondents had just started their working careers.

It has been observed that worklife patterns are changing, so that the norm is no longer that of one employer throughout a person's working career, but rather three or more. From the survey there is already apparent an acceleration in job mobility from generation to generation, as the younger segment of the sample, age 18 to 34, have already held the same number of jobs as the total sample, including all those who are still working. The replies of retired respondents to the worklife questions show that the average number of jobs held was 3.31, or slightly greater than the average for the whole group. For retired persons who had three jobs during their careers the average number of years for each

Table 9  
Incidence of Job Mobility among Respondents Who Have Held at Least One Job

	1st Job	2nd Job	3rd Job	4th Job	5th Job	6th Job	7th Job
Number of Respondents	894	694	513	316	194	119	54
Did not leave job	10.2	16.0	21.1	24.7	27.8	37.8	31.5
Left job				(Per cent)			
Did not leave labour force	89.9	84.0	78.8	75.3	72.2	62.2	68.5
Did not find work	57.1	54.9	49.6	48.1	49.5	39.5	48.1
Found work immediately	.2	1.2	1.2	2.2	1.5	3.4	1.8
Found work after one month or more	47.4	46.5	41.2	40.5	43.9	31.9	38.9
	9.5	7.2	7.2	5.4	4.1	4.2	7.4
Left labour force	32.7	29.1	29.2	27.2	22.7	22.7	20.4
Returned to work	21.5	19.0	14.4	14.6	14.5	9.2	9.3
Did not return to work	11.2	10.1	14.8	12.6	8.2	13.5	11.1
Average duration of all jobs Held	5.91	4.76	4.74	4.34	3.99	3.99	3.13
				(Years)			
Average length of time between jobs	.73	.71	.56	.55	.35	.30	

All "no" and "don't know" answers to each question have been removed.

Source Royal Commission on the Status of Pensions in Ontario, Consumer Survey, Table 5.



job was 7.26. This would indicate that even for retired persons, whose job mobility was affected by social circumstances far different than those of today, the service pattern already had departed from that of the single-employer career. This fact has serious implications for the effectiveness of employment pensions.

Responses of the retired group (Table 10) are useful to show completed work histories. The retired section of the sample was made up of 165 respondents. Of these respondents, 9 stated they had never worked and the 156 remaining who had worked had entered the work-force at an average age of 21. The average number of jobs reported was 3.31, in a history which tracked up to six jobs. By the end of the sixth job, 91 per cent of the respondents had left the labour force permanently.

Table 10

Incidence of Job Mobility among Retired Respondents Who Held at Least One Job

	1st	2nd	3rd	4th	5th	6th
Number of respondents	156	114	89	57	35	25
	(Per cent)					
Did not leave job	-	-	-	-	-	-
Left job						
Did not leave labour force						
Did not find work	-	-	-	-	-	-
Found work immediately	52.9	50.9	47.2	38.6	48.6	32.0
Found work after one month or more	7.7	10.5	4.5	10.5	11.4	8.0
Left labour force						
Returned to work	12.9	16.7	12.4	12.3	11.4	16.0
Did not return to work	26.5	21.9	36.0	38.6	28.6	44.0
Cumulative total leaving labour force	26.5	42.6	63.2	77.4	83.9	91.0
	(Years)					
Average duration of all jobs	11.26	6.98	7.26	6.71	5.23	5.39
Average length of time between jobs	.60	.72	.72	.46	.26	.20

Source The Royal Commission on the Status of Pensions in Ontario, Consumer Survey, Table 49.

Although the average number of jobs was 3.31, the mobility increases greatly when one excludes those who never worked and those who left the labour force after one job and did not return. The average job

duration drops from 11.26 years for those having only one job to 5.39 years for those having six jobs. The average length of time between jobs is also significant as it reflects loss of time for earning pension credits over the working life.

#### Mobility by Age Group

Table 11 taken from the Consumer Survey shows the incidence of job mobility by age groups.(14) The grouping age 55 and over includes the retired persons whose separate responses were recorded in Table 10. Those aged 18 to 34 are the most mobile; they take less time to find a new job than older people (approximately 6 months compared to 9 months for those 35 to 54 and nearly 11 months for those 55 and over). The average length of time in any one job increases with age over the whole job history. We see, for example, that of those having three jobs, the youngest age group had an average duration of 2.38 years per job while the age group 35 to 54 averaged 4.42 years and those 55 and over averaged 6.74 years.

#### Mobility by Sex

When the job mobility histories were broken down by sex, clear differences between male and female patterns emerged. Noteworthy are the following observations from the survey:

- women are far more likely than men to leave the labour force after their first job (46.8 per cent to 18.7 per cent);
- of women leaving the labour force after one job, 61 per cent of them later re-entered the labour force. In most cases they would have left work to undertake home-making and child-care activities;
- women spend about three times longer than men between jobs;
- women tend to keep their jobs for shorter periods than men;
- the ratio of women to men in the various categories decreases over time, from 47 per cent of women at the first job level to 30 per cent at the sixth job level.

Table 12 taken from the Consumer Survey shows the persistence of these patterns throughout the entire work history.(15) For example, while the average duration of all jobs decreases over the job ranges for both men and women, the average for women is consistently lower than that for men. For those having three jobs the average duration for men was 5.26 years and for women 4.04 years.

Table 11  
Incidence of Job Mobility among Respondents Who Have Held at Least One Job, by Age Group

	1st Job			2nd Job			3rd Job			4th Job			5th Job			6th Job		
	18-34	35-54	55+	18-34	35-54	55+	18-34	35-54	55+	18-34	35-54	55+	18-34	35-54	55+	18-34	35-54	55+
Number of respondents	284	329	293	203	280	229	126	214	183	65	137	126	33	89	77	17	53	55
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Did not leave job	18.3	9.4	2.7	26.6	17.9	5.2	30.2	25.7	12.6	38.4	28.5	16.7	39.3	33.7	18.2	41.1	45.2	34.6
Left job	81.7	90.6	97.3	73.4	82.1	94.8	69.8	74.3	87.4	61.6	71.5	83.3	60.6	66.3	81.8	58.9	54.8	65.4
Did not leave labour force	47.9	63.2	61.1	47.8	56.4	62.9	41.3	49.1	55.1	43.2	48.9	50.0	48.5	48.3	51.9	47.1	45.3	29.0
Did not find work	.7	-	-	2.0	1.1	.4	3.2	.9	-	3.1	2.2	1.6	3.0	2.3	-	5.9	1.9	3.6
Found work immediately	37.0	52.6	49.8	35.9	47.8	50.7	30.2	39.3	48.0	33.9	40.1	39.7	36.4	41.5	45.4	35.3	37.7	21.8
Found work after one month or more	10.2	10.6	11.3	9.9	7.5	11.8	7.9	8.9	7.1	6.2	6.6	8.7	9.1	4.5	6.5	5.9	5.7	3.6
Left labour force	33.8	27.4	36.2	25.6	25.7	31.9	28.5	25.2	32.3	18.4	22.6	33.3	12.2	18.0	29.9	11.8	9.5	36.4
Returned to work	24.3	21.9	17.4	15.3	20.7	17.0	12.7	15.4	13.7	9.2	16.8	12.7	6.1	12.4	18.2	11.8	5.7	10.9
Did not return to work	9.5	5.5	18.8	10.3	5.0	14.9	15.8	9.8	18.6	9.2	5.8	20.6	6.1	5.6	11.7	-	3.8	25.5
Average duration of all jobs held	2.94	5.52	9.22	2.48	4.72	6.85	2.38	4.42	6.74	2.11	3.84	6.03	2.23	3.52	5.52	1.87	3.23	5.40
Average length of time between jobs	.49	.77	.89	.48	.79	.75	.29	.64	.62	.20	.80	.39	.13	.30	.47	.13	.38	.27

(Years)

Note: All "no" and "don't know" answers to each question have been removed.

Source The Royal Commission on the Status of Pensions in Ontario, Consumer Survey, Table 7.

Table 12  
Incidence of Job Mobility among Respondents Who Have Held at Least One Job, by Sex

	1st Job		2nd Job		3rd Job		4th Job		5th Job		6th Job	
	M	F	M	F	M	F	M	F	M	F	M	F
Number of respondents	476	429	392	319	300	222	199	130	130	70	87	38
Did not leave job	12.8	7.0	18.6	12.2	27.7	15.3	24.7	26.1	26.2	34.3	43.7	31.6
Left job	87.2	93.0	81.4	87.8	72.3	84.7	75.3	73.9	73.8	65.7	56.3	68.4
Did not leave labour force	68.5	46.2	66.4	43.6	59.0	37.4	57.3	35.4	56.9	35.7	36.8	42.2
Did not find work	.2	.2	1.0	1.3	1.3	.9	1.5	3.1	.8	2.9	2.3	5.3
Found work immediately	55.7	37.1	55.5	33.2	50.4	27.0	48.8	23.8	49.9	27.1	29.9	31.6
Found work after one month or more	12.6	8.9	9.9	9.1	7.3	9.5	7.0	8.5	6.2	5.7	4.6	5.3
Left labour force	18.7	46.8	15.0	44.2	13.3	47.3	18.0	38.5	16.9	30.0	19.5	26.2
Returned to work	14.5	28.4	11.2	27.0	8.3	22.1	9.5	20.8	10.0	20.0	8.0	10.5
Did not return to work	4.2	18.4	3.8	17.2	5.0	25.2	8.5	17.7	6.9	10.0	11.5	15.7
Average duration of all jobs held	7.20	4.47	5.29	4.11	5.26	4.04	4.91	3.46	4.52	2.99	4.55	2.70
Average length of time between jobs	.38	1.19	.29	1.26	.24	1.04	.18	1.25	.17	.73	.18	.52

(Years)

Source The Royal Commission on the Status of Pensions in Ontario, Consumer Survey, Table 6.



## CONCLUSION

Work patterns must meet two requirements if employment pensions as presently designed are to produce full pension credits:

- the employee works for only one employer for the whole of his or her worklife;
- the worklife comprises an unbroken period from commencement, between ages 18 and 25, to age 65 - the usual age of retirement.

Our Consumer Survey data show that work patterns in Ontario do not conform to either of these requirements at present, and in fact have not done so for at least forty years. That is not to say there are not some whose work histories fit the "ideal" pattern. They are the winners in the employment pension game. The Commission is concerned that most do not conform, and thereby are losers. We must then ask to what extent they miss out on the "winnings."

Recognition of the general failure of work patterns to fit the model has led to a quest for some form of portability for employment pension plans. Multi-employer plans, reciprocal transfer agreements, and the statutory vesting rule are all addressed to the problem of job mobility and its effects on pension entitlement. Many briefs to the Commission treated portability as the key problem to be solved to make employment pensions viable. Portability would accommodate job mobility while preserving pension entitlement. However, even perfect portability would not extend coverage, nor could it create entitlement when workers are absent from the work-force because of illness, unemployment, or household duties.

## PORTABILITY

It is significant that the body appointed in 1960 by the Government of Ontario to study pensions was called the Committee on Portable Pensions. At that time the major issue facing the Committee was how a worker might move from one job to another without losing pension credits and pensionable service accrued with various employers. How could pension credits be carried forward to the new job? How could a pension be earned if there were several breaks in service over the person's worklife? The Committee's recommendations for a mandatory standard pension plan covering most employees in Ontario were embodied in legislation and would have provided a pension which was portable. However, the advent of the Canada Pension Plan brought about repeal of the Ontario legislation; and the lack of portability remained a major area of weakness in employment pension arrangements.

The Canada Pension Plan provides complete portability for its benefits on earnings up to the level of Yearly Maximum Pensionable

Earnings. The employee with twenty different jobs and the employee with only one, each contributing on the same level of earnings for the same period to age 65, can expect to receive the same amount of pension from the CPP.

The design characteristics which make this perfect portability possible may be described as follows:

1. Coverage of all employees in the same plan so that all employees are governed by the same benefit formula, funding method, contributions, and other plan provisions such as retirement age, and ability to accrue service without break;
2. Provisions requiring immediate vesting of benefits and locking-in of contributions;
3. Prohibition of the transfer of funds to any other pension vehicle.

Clearly those requirements, to obtain universality, must be strictly and uniformly applied.

In Ontario, employment pension plans have been allowed to develop with a minimum of government interference. A plan may be established voluntarily by any employer and may be wound up by the employer at any time. Except for certain basic protection required under the Pension Benefits Act and by rules of the Department of National Revenue, employers may design their plans to reflect their own particular needs and those of their employees. As a result, plan features exhibit infinite variety; of the 7,700 plans now registered under the Ontario Pension Benefits Act few are identical. This lack of homogeneity makes portability among existing employment plans virtually impossible.

Some attempts have been made towards partial portability, but each is limited either in effect or in application. Three approaches in particular have been tried and were advocated by a number of people in submissions to the Commission.

#### Earlier or Immediate Vesting

Vesting is dealt with in detail below, but for purposes of this discussion we will define it as the right of the employee, on termination of employment, to a deferred life annuity based on pensionable service to the date of termination, paid for by the employer's contributions and any required employee's contributions. The vesting rule under the Pension Benefits Act provides this entitlement when the terminating employee is age 45 and has 10 years' continuous service or membership in the plan. Unless the plan provides otherwise, a terminating employee who has not met the two conditions receives nothing on termination other than his or her own contributions, with or without interest. The mobile

employee clearly loses under these conditions; he or she may belong to pension plans for 40 years and still achieve no pension entitlement at all. Many persons and groups, employer and employee alike, proposed to the Commission that the vesting rule under the Pension Benefits Act be amended to require earlier vesting or immediate vesting to provide more portable pensions.

If immediate vesting were legislated for all employment pension plans, the result would not be to provide a "portable" pension which could be carried forward from employer to employer over a working life. Rather it would provide a fixed amount of pension to be left behind with each employer to be paid at normal retirement under the conditions of that particular plan.

There are specific practical shortcomings in the use of vesting rules to provide portability. Most important is that after termination there is no increase in the value of the vested benefit to reflect either the formula in the old employer's plan or the new employer's plan. If the vested benefit is based on final earnings, it will apply to earnings at termination - not to the considerably higher earnings the person may have had just prior to retirement. If the plan of the next employer has a final average formula, the employee will get this advantage but only for that part of the pension derived from service with that employer. Even with only one change of job, the terminated employee will suffer a disadvantage from that break in service. If the benefits are on a career average basis, the terminated employee will not share in any improvements in the plan made after termination. Obviously, improvements in any plan could be extended to vested former employees; but neither employers nor unions are likely to feel any obligation to do so. In the case of a vested money-purchase benefit, the value of accumulated contributions will continue to increase; but since contributions are held in the plan of the former employer, there is no portability in the strict sense.

A second limitation of vesting is less visible but just as serious, especially for younger employees. The problem is inherent in the funding method used in contributory defined benefit plans; it is most serious in plans with a career average formula. During the early years of plan membership - up to age 45 or even later - the cost of the accrued pension may be no greater than the value of the employee's own contributions with interest. If locked-in at the time of termination, the employee's own savings therefore will pay for all or most of the "vested" annuity; yet the individual has no opportunity to improve the eventual pension by investing the money in other ways. Whether or not most vested employees could (or would) use their locked-in contributions to better advantage, the fact remains that many resent this loss of freedom to manage their own affairs; and their resentment is all the more justified by the lack of any compensating benefit from employer contributions. Earlier vesting, if accompanied by earlier locking-in, would be seen primarily as a further restriction on the freedom of



employees. Those who would benefit from such a move would be the older workers; an improvement in their vesting conditions would require additional employer contributions. However, it should be borne in mind that one consequence could be the creation of a cost disincentive to the hiring of older persons.

A further shortcoming of vesting rules is that they do not deal with the basic problem of continuing service. To accrue a pension over a working lifetime presumes continuation of pensionable service without interruption. The vesting rule by its nature acknowledges broken service and operates only when service accrual stops. Even if a worker is immediately eligible to join the plan of the new employer after cessation of service under the old plan, the new benefit formula and conditions, other than in a money-purchase plan, involve only service from that time forward.

For these reasons immediate or early vesting is not a complete answer to the portability problem; but as a partial answer it is worth considering further.

#### Reciprocal Transfer Agreements

A reciprocal agreement for transfers among plans perhaps goes farthest in providing a truly portable pension because it is a method of preserving unbroken pensionable service even when such service is rendered to different employers.

Samuel Eckler, in his brief to the Commission,(16) outlines the two main prototypes of reciprocal agreement now in use:

"Reciprocal agreements within families of pension plans (e.g., those among related public sector employee, employer associations, unions, etc.) if properly drafted are an effective means of preserving complete pension rights on transfer of employment. There are probably many varieties of reciprocal agreements but I think the following are the two main types. The more popular of these two is that designed by the Federal Public Service Superannuation Administration under which the importing employer assumes the liability for the total pension of the imported employee including the service rendered to the exporting employer. The exporting employer and employee are responsible for the payment of the contributions that would have been made to the importing employer on account of service rendered to the exporting employer. The main objection to this kind of reciprocal agreement is that it imposes proportionately too great a burden on the importing employer and perhaps only the Canada Public Service Plan and its financial guarantor and other comparable employers are able to support this kind of arrangement. The other type of reciprocal agreement which is called pro-rata portability was developed in British Columbia



and produces a much more equitable distribution of costs between the importing and the exporting employers. The exporting employer is responsible for a pension provided the employee based on his plan and on the service of the exporting employer and taking into account increases in salary earned with the importing employer (sometimes with maximum limits imposed by the exporting employer) from the date of transfer to retirement."

The key to such agreements is in the essential homogeneity of several employers (and often the occupational homogeneity of their employees) and in the ability of those employers to accept the cost transfers required in the operation of the agreement. It is not surprising that reciprocal agreements are commonly found among governments at federal and provincial levels, some of the larger municipalities, crown corporations, universities, and other educational institutions. (17)

Employers in the private sector, on the other hand, seldom enter into reciprocal agreements. Even where homogeneity might be sufficient, there appears to be little interest in the idea. The steel industry, for instance, includes a number of employers with similar characteristics. At our hearings both Algoma Steel and Dofasco were asked about reciprocal agreements, and both replied that their competitiveness for skilled workers would make them reluctant to enter reciprocal agreements covering the steel industry. This bears out the comments of the Canadian Life Insurance Association: (18)

"Management and employee attitudes rather than technical problems seem to be the more critical consideration in implementing any portability scheme. Pension portability would facilitate employee mobility. Employees with longer periods of service who might now be reluctant to move because of pension considerations would be more willing to consider a move if a portability scheme were in place. Employers may well be reluctant to make it easier for their longer service, more experienced employees to move. Also, employers might consider that portability benefits primarily those individuals to whom the company has least obligation, that is, individuals who have decided to take their skills elsewhere. The employer might place a higher priority on using whatever funds are available for employee benefit purposes to improve the benefits of individuals who remain loyal to the company."

The CLIA itself has developed a draft model agreement to provide portability of service among the pension plans of member companies. The technique used is that of transferring "credit for service with a previous employer to a new employer's pension plan. It is therefore, a mechanism for transferring service from employer to employer, as opposed to vesting, which is a mechanism for preserving accrued pension

benefits upon termination of employment."(19) The CLIA agreement has now been adopted by a number of its member insurance companies, with more expected to participate in the near future.

Because the present pension legislation is designed to protect vested benefits on termination, there are a number of regulatory problems under the various Pension Benefits Acts and the Department of Revenue regulations to be worked out in the transfer of credits and monies from pension funds. If the use of reciprocal transfer agreements is to be encouraged, however, government can assist in the resolution of these problems.

In theory the reciprocal transfer agreement could provide a large measure of portability. In practice, its effectiveness is likely to be limited by its general lack of acceptance in the private sector. To legislate reciprocity would be impossible without also requiring uniformity in plan terms and conditions.

#### Multi-Employer Pension Plans

This approach to portability works by utilizing the homogeneity of a group of employers to establish a common plan. It is usually based on a collective agreement negotiated between a single local union and a group of employers or between a group of local unions in the same trade and an employers' association. Multi-employer plans are common in the construction industry.(20) This type of arrangement affords portability of benefits for union members in a particular trade or industry; that is, members may move from employer to employer within the group without loss of pensionable service or accrued benefits. The worker's membership is through a union local rather than through a particular employer. Multi-employer plans are not without their problems, some of which may require further regulatory measures. Nevertheless they are capable of extending pension coverage to highly mobile workers in certain trades. In most cases, they provide portability only while the worker is a member of the local union which negotiated the plan and their use is limited to the groups of employers who deal primarily with unions furnishing workers who have a particular trade or skill. Portability is enhanced in those few cases (all of very recent origin) in which two or more multi-employer plans are linked by reciprocal transfer agreements. Recommendations for the regulation of multi-employer plans can be found in a subsequent chapter, Government Regulation: The Pension Benefits Act.

From the foregoing it can be seen that none of these three approaches provides perfect portability, although reciprocal transfer agreements and multi-employer plans come close for the particular groups to which they apply. Immediate vesting cannot provide portability because it does not recognize the need for unbroken service.

At present, therefore, the Canada Pension Plan alone represents the ideal in portability. This is a persuasive ground for simply increasing the benefits under the CPP. There are, however, other problems related to increasing the CPP(21) and the Commission is therefore proposing a different answer to the portability problem. Because improved vesting is a part of this answer and in the Commission's opinion should be espoused whether or not the Commission's particular answer is adopted by the Government of Ontario, it is appropriate to discuss the whole question of vesting at this point.

## VESTING

Vesting is perhaps the least understood of all the difficult concepts inherent in pensions. To examine it one must first understand the nature of the pension promise. The promise has evolved from the original ex gratia payments of the employer to the employee who could no longer work, to today's elaborate system of pre-funding and protecting the value of pensions - on terms prescribed by statute.

### Nature of the Pension Promise

We have discussed the concept of a pension both as a long-service reward and as deferred wages. The money-purchase plan is reasonably adaptable to either approach to the characterization of pensions. It is in the defined benefit plan that basic misunderstandings occur. The following discussion will centre on defined benefit plans. Money-purchase plans will appear again in the discussion of our proposals.

### The Employer's Representation

"If you stay in my employ until retirement I will pay you a pension of X dollars for your lifetime." At one time the pension promise, as a rule, took this simple form. In it there was no promise

- that the employer would put away any money to fund the promise before the employee's retirement, or even at that time;
- that the employee would get anything if he or she were to die or leave the employer before retirement;
- that the employee would have a choice of retirement age;
- that the employer would continue to employ that person until retirement;
- that the employee's spouse would receive anything on the employee's death after the pension had commenced;



- that the promise would be made good even if the employer went out of business.

### The Group Principle

While pensions were still in their infancy, workers were beginning to meet other needs through the "mutual benefit" approach. Each person in a group would contribute to a fund out of which monies were paid in the event of a member's sickness or disability. If a member ceased to contribute or died, having contributed to the fund but without fulfilling the conditions for a benefit, then he or she received nothing back from the fund. Contributions, in other words, paid the cost of insurance against specific needs.

Later expanded into what is now known as group insurance, the mutual benefit approach is the essence of the Canada Pension Plan. Contributions are made into the "pool" by all covered workers, and benefits are paid out when certain conditions have been met. There is no strict relationship between monies paid in by an individual and benefits paid to that person. There is no separate account for the value of an individual's contributions; rather, the contributor accrues certain benefit rights. The death benefit is nominal (and in fact was not part of the original design of the plan). A single person, for example, who dies before reaching age 65 and has not been a disability pensioner, will receive no benefit from contributions apart from the small death benefit. The rest of that person's contributions remain in the pool to pay benefits to those who meet the conditions for retirement pensions and other benefits. As with any insurance, the payment of premiums ensures only that benefits will be paid if and when certain events occur.

We have used the Canada Pension Plan as possibly the best-known example of the insurance approach to pensions. In fact, the application of this basic technique in the CPP design reflects a widespread acceptance of the insurance idea in many thousands of employment pension plans - in both private and public sectors - long before the government plan was established. They have the same essential characteristic: they promise specific benefits in the event of specific occurrences. Employee contributions, like insurance premiums, are set at a generally affordable level. The employer's cost depends on the total benefit cost, which may be highly variable; in any case, total cost is limited by the conditions under which benefits are payable - conditions which ultimately will be met by only a fraction of the participants.

In the evolution of defined benefit plans, both contributory and non-contributory, we see that the insurance principle became wedded to the employer's pension promise. The results were clear in the operation of pension plans before the introduction of the Pension Benefits Act. Many employees who left employment or were fired before the specified



retirement age received no benefits at all. In collective bargaining, unions supported the principle that there should be pensions for all their members; but, understandably, they were concerned mainly for those who actually stayed as members of the group until retirement. Thus, in many of the industry-wide plans promoted or encouraged by the unions, various employers contribute so many cents per hour worked; but a member will only benefit (subject to vesting requirements) if he or she remains a member of that plan. By ceasing to be a member, he or she may waive all rights to benefits under the plan.

### Introduction of the Vesting Rule

By the time of the study of the Ontario Committee on Portable Pensions,(22) some employers had extended the pension promise so that if an employee remained with the employer a stipulated number of years (say 20), the employer would assume a liability to pay a pension on retirement whether or not the employee continued to work for the employer until retirement. Vesting was not always that generous, however; nor was it always unconditional, since it was sometimes denied if an employee were discharged for cause or acted later in some way considered "disloyal" to the former employer. In contributory plans, vesting nearly always was withheld if the terminating employee chose to remove his or her own contributions in cash.

The Committee had before it the problem of making every pension "portable," i.e., rights acquired by the employee should not be lost by leaving the employer. The Committee found

"The 'least portable pension' is one in which vesting is delayed until retirement. When vesting is delayed until that time, as in some non-contributory plans, it follows that able-bodied employees who are laid off permanently before retirement, perhaps only a short time before, or who leave voluntarily, gain no pension whatever. The need for earlier vesting is especially great in such cases."(23)

In practice, the word "vesting" has two distinct meanings: one, a right on termination of employment to employer's contributions or the pension which those contributions can provide; two, a right to any pension at all. It is in this second sense that the Portable Pensions Committee used the term "least portable." In discussing the nature of pensions as a gratuity or right, the Committee concluded: "a pension is in the nature of things a conditional arrangement but there should be no unnecessary conditions."(24)

The enactment of the Ontario Pension Benefits Act in 1965 in effect changed the nature of a pension. By introducing the vesting rule of age 45 with 10 years' service the government chose to modify the traditional promise. The concept of the "long-service reward" was replaced by that

of a benefit earned over time; thus it paved the way for the notion of pensions as a "deferred wage." More recently, that idea has found expression in the concept of "redirected wages" advanced by the Ontario Public Service Employees Union: the idea of deferral is removed, and entitlement is seen to be earned immediately.(25)

The Committee on Portable Pensions did not set out an explicit philosophical basis for vesting. But their goal of making all pensions portable necessarily assumed some "right" which the employee could "carry away" from a plan. It was also clear that the Committee was concerned to see this newly created "right" protected from withdrawal of cash in lieu of pension and therefore it recommended that employee contributions be locked in simultaneously with the absolute pension entitlement. However the Committee, for cost considerations, did not feel it could alter the employer's promise to the ultimate point:

"The most portable pension, on the other hand, is one that vests in the employee immediately and in full, usually under a system of joint contributions."(26)

The Committee described its dilemma as follows:

"It appears that more portability through earlier vesting and less availability of refunds by way of cash withdrawal are both required if a substantial increase in the number of pension recipients is to be achieved.

"A law requiring both of these changes, for employees at all ages, would however face objections from both sides: from employers on the ground of costs and from employees who wished to retain the withdrawal option."

The same dilemma faces this Commission. It would be easy to recommend immediate vesting, but cost considerations are important in any situation where plans are voluntary and can be wound up if cost threatens to become too onerous. The Commission therefore attempted to balance the need for improved vesting against the consequences of higher costs for the employer.

Looking first at the results of the Consumer Survey, the Commission decided that there was sufficient indication that present job mobility patterns, particularly for women, were such that the present vesting rule of age 45 with 10 years' service would be of little assistance in preserving pension rights for many covered workers. Therefore the Commission undertook a further examination of what vesting rules were possible and which of these, on balance, would be the most effective alternative to the "45 and 10" requirement in the Pension Benefits Act.

The study, carried out by Yves Balcer and Izzet Sahin, is a quantitative assessment of the basic types of pension plan as they would operate in various circumstances. It was designed to measure: "the ultimate benefit to be derived by a group of similar employees from their career membership in pension plans, as a function of vesting rules, termination rates, periods of employment, types of plans, and economic assumptions."

Unlike the usual pension model whose scope is limited to the plan or firm, the Sahin-Balcer framework provides for the integration of measurements throughout the working lives of individuals, and therefore addresses as directly as possible the question of what total impact might be expected from any given change in vesting legislation.

The following specific questions were posed:

- What are the incremental benefits and costs associated with moving from the present vesting rule of "45 and 10" to a more liberal rule?
- How would these benefits and costs vary with termination rates, early or late retirement, and inflation?
- To what extent are the age requirements in vesting rules like 45 and 10 and 40 and 5 operational?
- Are some vesting rules more equitable than others in terms of distribution among the retired population of the "pension wealth"?

The Commission arranged for the study to be undertaken by Izzet Sahin and Yves Balcer, both formerly of the University of Ottawa and now at the University of Wisconsin. Their report is published in Volume VIII; included are the methodology and assumptions. The statistical output from the three phases of the study is deposited with the Archivist of Ontario, in the Commission's papers and proceedings.

Following is an outline of the phases of the study and a summary of the results. Phase I was concerned exclusively with the accruing of "pensionable service," not the dollar amounts or value of pensions. A computerized model was used to determine the effect of a number of vesting rules, termination rates, entry ages, and retirement ages. The questions to be answered were, "How many years of an employee's service would on average be pensionable and how would the pensionable service of an employee group vary around the average?"

Phase II was concerned with the amount of pension produced by various types of pension under the different assumptions. It was



designed to answer the questions, "How much pension would be produced at retirement age and how does it compare with the maximum possible under the plan and with pre-retirement earnings?"

Phase III was an examination of the way in which pension costs vary under different vesting rules. It attempted to answer the questions, "Which vesting rule is the most valuable to the employee, which is the most costly, and how would a change in the vesting rule affect the costs of the plan?"

### Assumptions

For an understanding of the results it is necessary to know what assumptions were made for purposes of the analysis. The principal assumptions are outlined below.

It was assumed in all phases that the employee throughout employment would work for employers with pension plans; that the plans provide immediate eligibility for membership, and that the employee elects to join or is required to join when first eligible. No allowance was made for the possibility that the employee might be unemployed, self-employed, or in part-time employment. It was further assumed that the successive employers do not operate multi-employer pension plans or have reciprocal transfer agreements in force. It was also assumed that an employee who changes employment always goes to another employer with a similar type of pension plan.

The restrictions in the assumptions, necessary to avoid an unmanageable volume of computer runs, do not invalidate the conclusions since the purpose was to determine the comparative merits of different vesting rules rather than to produce absolute figures.

### Termination Rates

Five sets of termination rates were selected. Termination rates are probabilities, depending on both age and length of service with the employer, that an employee will leave employment at the end of a year. High, medium, and low termination tables were developed from the turnover statistics of some large employee groups in Canada. The high, medium, and low rates at each age and service point were in the ratios 3:2:1. In addition, male and female termination rates in the public service, representing the experience of the Ontario Public Service Superannuation Fund in the period 1974-1976, were used.

### Mortality Rates

Mortality rates used were based on the 1971 Group Annuity Mortality Table for males developed by the Society of Actuaries.



## Worklife

Two alternatives were used for the worklife; employees were assumed to enter the work-force at age 20 in the year 1980 and retire either at 60 or 65. On investigation it was found that changing the entry age from 20 to 25 would have only a small effect on the pensions and would not alter the ranking of the vesting rules. Retirement age 65 only was used in combination with the public service termination rates since this is the normal retirement age in the public service (although retirement is allowed at age 60 subject to 20 years' service or when age plus service totals 90).

## Vesting Rules

Choice of vesting rules to be tested was governed by the Commission's area of inquiry as explained above, and by its familiarity (from briefs and other published material) with a broad spectrum of vesting formulas - some already to be found in operation, and others advocated as answers to the problems of portability. While other combinations of age and service might be conceived, those selected obviously represent a full range of feasible options from the most liberal to the least liberal; and the intermediate options can be identified without difficulty.

For Phase I, five vesting rules were selected:

- Age 45 and 10 years' service; (45 and 10)
- 10 years' service at any age; (Service 10)
- Age 40 and 5 years' service; (40 and 5)
- Years of age plus service equal 45; (Rule 45)  
    (with one year's service for eligibility)
- 5 years' service at any age. (Service 5)

(Graduated vesting from 1 to 10 years of service was also examined in Phase I and was found to give results intermediate between rule 45 and service 5).

For Phases II and III two vesting rules were added:

- Years of age plus service equal 50; (Rule 50)  
    (with one year's service for eligibility)
- 1 year's service at any age (approximate immediate vesting)

## Phase I - Pensionable Service

Table 13 shows how many years of pensionable service may be expected under the various alternatives, and the coefficient of variation of individual cases from the respective averages.

Table 13  
Expectation and Coefficient of Variation in Number of Years of Career Pensionable Service  
(T = Retirement Age) - Worklife Starts at Age 20

Terminations											
Vesting rule	T	Low	Medium	High	P.S.						
					male(b)	female(b)					
45 and 10	65	35.3	.27(a)	25.5	.48(a)	16.0	.77(a)	33.4	.25	27.2	.31
	60	30.3	.31	21.2	.55	12.7	.90				
Service 10	65	38.8	.14	29.4	.37	18.7	.66	37.8	.16	31.9	.25
	60	33.9	.19	25.1	.42	15.4	.74				
40 and 5	65	37.7	.19	30.3	.29	22.2	.43	36.0	.18	31.3	.20
	60	32.8	.21	25.8	.33	18.4	.49				
Rule 45	65	39.6	.14	33.7	.21	26.9	.28	38.2	.14	34.0	.17
	60	34.7	.15	28.9	.24	22.5	.32				
Service 5	65	41.6	.08	35.6	.18	26.7	.33	41.1	.07	40.0	.11
	60	36.7	.09	31.0	.20	22.8	.37				

a The co-efficient of variation is the distribution around the mean. The larger the co-efficient the more uneven the distribution. Thus with high termination such service that is pensionable would be distributed very unevenly among the employees.

b Public Service Superannuation Fund (Ontario), 1974-76.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

For retirement at age 65 and entry age 20 the potential service on which pension might be earned by an employee who never changed his job or forfeited any pension credits would be 45 years. Table 13 shows, to take an example, that with vesting under the age 45 and service 10 rule, employees with low termination rates would expect on average to have a pension based on 35.3 years of service. Thus, 78.4 per cent (35.3 years out of a possible 45) of an average employee's total service would be pensionable. In a group subject to high termination rates, the average worker would be pensioned on only 16 years of service, or 35.6 per cent of potential pensionable service. These percentages of pensionable to total years of employment are shown in Table 14.

Table 14

Ratio of Pensionable Years of Service to Total Years of Service

Vesting rule	Worklife age 20-65				
	Termination rates				
	Low	Medium	High	P.S.	P.S.
				male(a)	female(a)
(Per cent)					
45 and 10	78.4	56.7	35.6	74.2	60.4
Service 10	86.2	65.3	41.6	84.0	70.9
40 and 5	83.8	67.3	49.3	80.0	69.6
Rule 45	88.0	74.9	59.8	84.9	75.6
Service 5	92.4	79.1	59.3	91.3	88.9

Vesting rule	Worklife age 20-60		
	Termination rates		
	Low	Medium	High
(Per cent)			
45 and 10	75.8	53.0	31.8
Service 10	84.8	62.8	38.5
40 and 5	82.0	64.5	46.0
Rule 45	86.8	72.2	56.2
Service 5	91.8	77.5	57.0

a Public Service Superannuation Fund (Ontario), 1974-76.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

The large loss of pension rights resulting from high labour turn-over is very evident. An objective of this study therefore is to show which vesting rule would most effectively limit the losses from job mobility.

For an employee retiring at age 60, potential service would be 40 years. We see from Tables 13 and 14 that if vesting occurs under the age 45 and service 10 rule, the employee under low termination rates would expect to have 30.3 years of pensionable service, that is 75.8 per cent of his or her potential. The percentage is lower than that for re-

tirement at age 65 because termination of employment between ages 60 and 65 is less likely than at a younger age. Where termination rates are low, a fairly high proportion of service is pensionable (78.4 per cent to 92.4 per cent) depending on the vesting rules and retirement age; but where termination rates are high, the proportion is much lower (31.8 per cent to 59.3 per cent). It is also to be noted that when termination rates are high the coefficient of variation is also high, indicating that such service as is pensionable would be distributed very unevenly among the employees.

In Tables 13 and 14 the ordering of the vesting rules used is from the most stringent (45 and 10) to the most liberal (service 5) in terms of the pensionable service produced, subject to minor irregularities. Thus, if full vesting were provided after five years of service regardless of age, more years of service would be pensionable on average than under any of the other vesting rules considered.

Vesting on the Service 5 basis also has the lowest coefficient of variation if terminations are low or medium and the second lowest coefficient if turnover is high. Under conditions of high employee turnover and retirement at age 65, the vesting rule of age plus service equals 45 (rule 45) produces the highest degree of pension protection with the lowest variability. It is only marginally better, however, than service 5 which in all other cases generates more pensionable years and is the least sensitive to different termination rates. Table 15 shows graphically the percentage of pensionable service for the various vesting rules and termination rates.

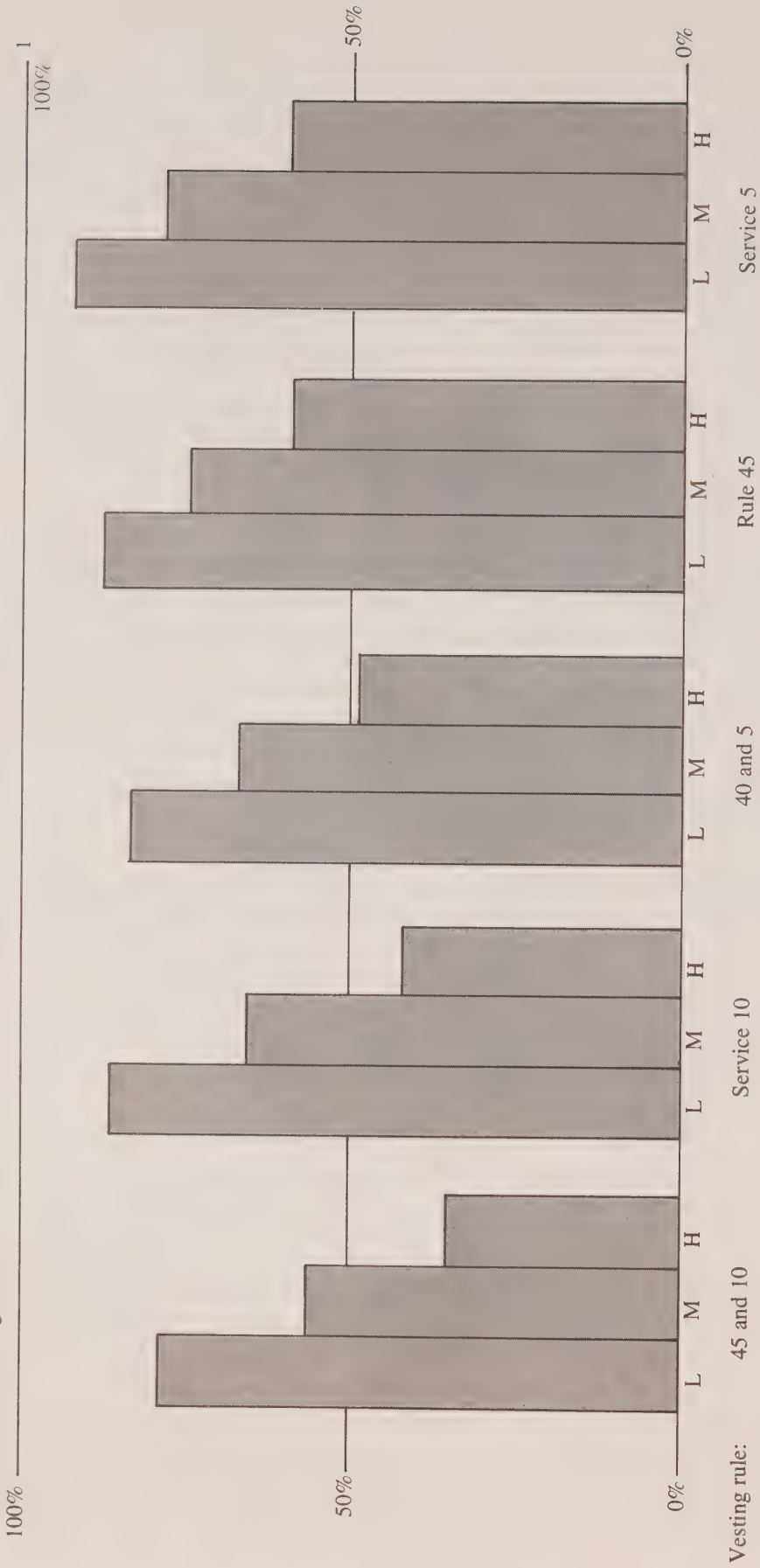
The Sahin-Balcer study shows that it is possible for employees to end their career with no pensionable service whatsoever. The probability of this unfortunate result is small (under 1 per cent) except where the 45 and 10 vesting rule is in force, or with service 10 with medium or high terminations, or with 40 and 5 with high terminations. In the other situations virtually every employee who reaches retirement age will have some pension from the employment pension plan, even though the pension may be very small.

The years of pensionable service for those subject to the termination rates of the public service are intermediate between the figures for low and medium terminations. Reference to actual experience in the public service enables us to observe the effect of different vesting conditions separately for male and female plan members. Higher turnover rates among females in the public service, as in most types of employment, mean less pensionable service in total and hence lower pensions. From Table 14 it is clear that a 5-year service condition for vesting would do the most (of the five options tested) to equalize the average accumulation of pensionable service for men and women. It should be noted that the study, apart from the use of actual termination rates for the PSSF, assumes that no one leaves the work-force before retirement.



Table 15

Percentage of Total Service that Is Pensioned Under Various Vesting Rules with Low, Medium, and High Termination Rates (L, M, H), Retirement at Age 65



Source Royal Commission on the Status of Pensions in Ontario.

Consequently, reference to the public service rates is useful if we are to recognize the existence of an important difference between male and female career patterns: the tendency of women to leave the labour force for a period of child-rearing.

While the model assumes that a terminating employee goes immediately to a new employer who also has a pension plan, we must remember that both men and women are likely to have breaks in work history and plan membership. As a result, the study produces figures higher than we can expect in the real world. The loss of pensionable service through job mobility is more serious than can be shown by the model, whose purpose is to show comparative rather than absolute effects.

## Phase II - Pension Benefits

Phase II builds on the output from Phase I by assessing the amount of pension benefit to be derived from various types of pension plans, based on the calculated years of pensionable service. Pension benefits were expressed initially as a percentage of wages received at age 64, or of the wages that would have been received at age 64 had the employee not retired at age 60. For our purposes we have recomputed the latter to show the pension as a percentage of the last year's pay, i.e., at age 60.

Pension amounts depend on the type of pension plan and the employee's earnings history; accordingly it was necessary to make additional assumptions.

### Pension Plan Types

Five types of pension plan were studied:

- 2 per cent of career average earnings for each year of service, contributory (5 per cent by employee) and non-contributory;
- 2 per cent of last 5 years' average earnings for each year of service, contributory (5 per cent by employee) and non-contributory);
- money-purchase, contributory - 5 per cent each from employer and employee.

The pension plans were not integrated with the Canada Pension Plan, although many plans are in fact integrated in a variety of ways. Also ignored is any limitation on pensionable service. To vary these assumptions would not significantly alter the relative merits of the vesting rules under consideration.

## Economic Assumptions

For Phases II and III, economic assumptions were based on the Commission's "most probable" inflation assumption as used throughout the report. These were taken as:

	Rate of inflation	Real interest rate		Total rate of return for pension funds
		Government bonds	Pension fund portfolios	
1980-84	5.5	2.4	3.0	8.5
1985-89	5.0	2.6	3.2	8.2
1990-	4.0	2.4	3.0	7.0

A supplementary calculation was made with low inflation, the above figures being decreased by 1 per cent; and with high inflation, the above figures being increased by 2 per cent. The real growth rate used for wages and salaries was 1.8 per cent in 1980-84, 2 per cent in 1985-89, and 2.1 per cent in 1990. The wage profile by age was that shown below (the wage at age 20 is assumed to be the same for all employees age 40 to 65).

Age	20	25	30	35	40-65
Wage index	.40	.65	.85	.93	1.00

For contributory defined benefit plans, when an employee terminates before vesting, or dies before or after vesting, it was assumed that employee contributions are returned with interest at 4 per cent per annum (3 per cent if there is low inflation or 6 per cent in the high inflation scenario). In a money-purchase plan (contributory), it was assumed that the fund rate of interest would apply whether the employee terminates or dies. In contributory plans, when an employee terminates after meeting the vesting qualification, the benefit is calculated as the greater of the accrued pension or what the employee's accumulated contributions would buy.(27)

Tables 16, 17, and 18 show the expected pension benefits derived from different types of plan under the various assumptions, expressed as a percentage of final wages. The year of entry into the labour force is taken as 1980, and therefore the last year of employment is 2019 for retirement age 60 and 2024 for retirement age 65; in either case benefits are related to wages in the year of retirement. In the money-purchase plan, the amount of annuity reflects the different life expectancies at age 60 and age 65.

The potential benefit for an employee retiring at age 60 (that is, the maximum pension benefit payable to an employee who has no breaks in service) is 80 per cent of career average earnings or of final 5-year average earnings as the case may be (2% x 40 years). For an employee retiring at age 65 the potential benefit is 90 per cent of the appropriate earnings.

However, career average earnings for any person are considerably less than the last five years' average earnings, which in turn are usually less than earnings just before retirement. We therefore find, on the wage and salary assumptions outlined earlier, that the potential maximum benefit for an employee retiring from the career average pension plan at the end of year 2024 is 31.37 per cent of his earnings in his final year. If this employee had been in the final average plan his potential benefit would be 80.23 per cent of earnings in 2024.

The contrast between the benefits generated by these two pension plans is very great. It must be remembered that, in this study, benefits in the career average plan are never updated or improved; in practice, many plans of this type do have their prior service pension raised from time to time, particularly in periods of high inflation. Our purpose here, however, is not to compare the merits of different plan types, but to show which are most sensitive to the interaction of vesting rules and employee turnover rates.

If the employee were to retire at the end of 2019 - that is, at age 60 instead of age 65 - the maximum potential pension benefit would be 30.19 per cent of the most recent year's earnings in the career average case, or 71.32 per cent in the final average plan. Comparisons of the age 60 and age 65 retirements are summarized below.

	Career average plan	Final average plan
Retirement at age 60 in 2019	(Per cent)	
Potential pension as percentage of last year's earnings in 2019	30.19	71.32
Potential pension as percentage of anticipated earnings in 2024	22.45	53.04
Retirement at age 65 in 2024		
Potential pension as percentage of actual earnings in 2024	31.37	80.23

The figures based on retirement age 60 and earnings in year 2024 are included in order that a comparison may be made with the figures in Table 4 of the Sahin-Balcer report. It is assumed that the pension commencing in 2019 is not indexed or otherwise increased after the employee's retirement.

From Table 16 for career average plans and Table 17 for final average plans we find the ranking of the vesting rules from stringent to



liberal is the same as that shown for pensionable service (Phase I), except that Rule 45 and Rule 50 are now more liberal than Service 5 for defined benefit plans. The two former rules preserve more pensionable service once the employee has passed age 45 than Service 5, because wages increase with age; a year of pensionable service when the employee is approaching retirement has greater value than a year at a younger age.

Generally speaking the variability is in the same order as the pension benefit. Apart from Service 1 which is almost immediate vesting, Rule 45 not only produces the largest pension benefit but also has the smallest coefficient of variation.

From Table 18 it will be seen that the order from stringent to liberal in the vesting provisions for defined benefit plans is not preserved under the money-purchase plan. Here, it will be observed that in money-purchase plans Service 5 is better than Rule 45 if terminations are low, about the same with medium terminations, and worse with high terminations.

For all types of plans the vesting rule has a rather small impact on the expected pension benefits if termination rates are low; the maximum spread between the most stringent and the most liberal rule is only 24 per cent. With higher termination rates the vesting rule is more critical. At high termination rates the increase in benefits can be as much as 143 per cent.

If the results under Rule 45 and 10 are compared with those under Service 10 it will be seen that the age requirement preserves less of the expected pension benefits than the service requirement.

The impact of changing the vesting rule is considerably more pronounced in money-purchase plans than in career average plans. The impact in final 5-year average plans is less than in other types of plan. In other words, the money-purchase plan is the most sensitive to vesting provisions and the final average plan least.

Tables 19 and 20 show the percentage of the actual pension to the maximum available under the career average and final 5-year average plan. The pension under all examples is considerably less than the pension for an employee who never had a break in service, the maximum potential pension under the plan. The pension loss is greater in the final 5-year average plan than in the career average plan. In both of these plans a loss occurs because not all service is pensionable, but in the final 5-year average plan there is another loss because each break in service reduces the relative value of the pension accrued before the break. Thus, even if there were full and immediate vesting, breaks in service would cause a loss of pension in the final 5-year average plan relative to the potential pension.

Table 16  
Expectation and Coefficient of Variation of Pension Benefits Under 2 Per Cent Career Average Pension Plans  
Expressed as a Percentage of Final Wage (T = Retirement Age) - Worklife Starts at Age 20

Vesting rule	T	Low		Medium		High	
		terminations		terminations		terminations	
45 and 10	65	27.22	.22(a)	21.04	.46(a)	13.74	.81(a)
	60	22.43	.26	16.67	.54	10.65	.93
Service 10	65	28.02	.19	21.98	.43	14.40	.77
	60	23.37	.22	17.77	.48	11.16	.85
40 and 5	65	28.88	.11	24.86	.24	18.94	.44
	60	24.09	.13	20.25	.28	14.95	.50
Rule 50	65	29.68	.06	27.20	.11	23.48	.19
	60	24.85	.08	22.26	.15	18.61	.24
Rule 45	65	29.94	.04	27.82	.09	24.44	.16
	60	25.17	.06	23.02	.12	19.76	.19
Service 5	65	29.54	.09	25.80	.22	19.76	.41
	60	24.87	.10	21.35	.25	15.92	.46
Service 1	65	30.42	.03	28.96	.07	26.08	.13
	60	28.73	.03	24.36	.08	21.67	.14

a Coefficient of variation.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

Table 17

Expectation and Coefficient of Variation of Pension Benefits Under 2 Per Cent Final 5-Year Average Plan Expressed as a Percentage of Final Wage (T = Retirement Age) - Worklife Starts at Age 20

Vesting rule	T	Low			Medium			High		
		terminations			terminations			terminations		
45 and 10	65	58.00	.35(a)	38.72	.61(a)	22.58	.95(a)			
	60	44.91	.38	29.34	.66	16.54	1.06			
Service 10	65	59.26	.32	40.12	.57	23.54	.90			
	60	46.41	.33	31.03	.60	17.69	.97			
40 and 5	65	60.02	.29	43.08	.45	28.36	.63			
	60	47.00	.30	33.53	.47	21.70	.68			
Rule 50	65	60.96	.27	45.54	.37	32.96	.44			
	60	47.94	.27	35.68	.38	25.44	.47			
Rule 45	65	61.28	.26	46.26	.36	34.00	.42			
	60	48.32	.25	36.52	.36	26.65	.42			
Service 5	65	60.96	.27	44.30	.42	29.36	.60			
	60	48.11	.27	34.96	.43	22.86	.63			
Service 1	65	61.84	.25	47.48	.34	35.70	.38			
	60	48.97	.24	37.97	.32	28.64	.37			

a Coefficient of variation.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

Table 18  
 Expectation and Coefficient of Variation of Pension Benefits Under 5 Per Cent Plus 5 Per Cent Money-Purchase  
 Plan Expressed as a Percentage of Final Wage (T = Retirement Age) - Worklife Starts at Age 20

Vesting rule	T	Low			Medium		High	
		terminations			terminations		terminations	
45 and 10	65	36.06	.27(a)	26.10	.50(a)	16.12	.84(a)	
	60	26.86	.31	18.78	.58	11.12	.97	
Service 10	65	39.18	.18	29.58	.40	18.48	.73	
	60	29.58	.20	21.81	.45	13.18	.81	
40 and 5	65	38.55	.17	31.07	.30	22.30	.48	
	60	29.01	.20	22.88	.34	15.96	.55	
Rule 50	65	39.88	.14	33.62	.23	26.43	.32	
	60	30.14	.16	24.83	.27	18.89	.38	
Rule 45	65	40.82	.11	35.47	.18	28.87	.25	
	60	30.95	.12	26.45	.21	21.01	.30	
Service 5	65	41.72	.09	35.27	.21	25.78	.39	
	60	31.77	.10	26.53	.23	18.98	.44	
Service 1	65	43.45	.03	40.80	.07	35.80	.13	
	60	33.24	.03	31.08	.07	27.05	.14	

a Coefficient of variation.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.



Table 19

Ratio of Pension Benefits to Maximum Potential Pensions Under a Career Average Plan

Vesting rule	Worklife age 20-65			Worklife age 20-60		
	Termination rates			Termination rates		
	Low	Medium	High	Low	Medium	High
	(Per cent)					
45 and 10	86.8	67.1	43.8	74.3	55.2	35.3
Service 10	89.3	70.1	45.9	77.4	58.9	37.0
40 and 5	92.1	79.2	60.4	79.8	67.1	49.5
Rule 50	94.6	86.7	74.8	82.3	73.8	61.6
Rule 45	95.4	88.7	77.9	83.4	76.3	65.5
Service 5	94.2	82.2	63.0	82.4	70.7	52.7
Service 1	97.0	92.3	83.1	85.3	80.7	71.8

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

Table 20

Ratio of Pension Benefits to Maximum Potential Pension Under a Final 5-Year Average Plan

Vesting rule	Worklife age 20-65			Worklife age 20-60		
	Termination rates			Termination rates		
	Low	Medium	High	Low	Medium	High
	(Per cent)					
45 and 10	72.3	48.3	28.1	63.0	41.1	23.2
Service 10	73.9	50.0	29.2	65.1	43.5	24.8
40 and 5	74.8	53.7	35.3	65.9	47.0	30.4
Rule 50	76.0	56.8	41.1	67.2	50.0	35.7
Rule 45	76.4	57.7	42.4	67.8	51.2	37.4
Service 5	76.0	55.2	36.6	67.5	49.0	32.1
Service 1	77.1	59.2	44.5	68.7	53.2	40.2

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

Under career average plans the percentage of pensionable service to maximum service is less than the percentage of the actual pension to the maximum pension (see Tables 14 and 19). For example, with vesting rule 45 and 10, high terminations and retirement at age 65, the average service is 35.6 per cent of maximum service and the average pension is 43.8 per cent of maximum pension. The reason for this is that termination rates are high at younger ages, when wages and hence the pension per year of service are low. It must be remembered that the career average plan is assumed not to be upgraded in any way on account of inflation or rising wage levels. If prior service benefits were to be increased from time to time, the same plan would produce pensions closer to those of the final 5-year average plan. In practice, career average plans are often updated in this manner. Otherwise, inflation and normal salary progression operate to create a serious disadvantage for members of career average plans.

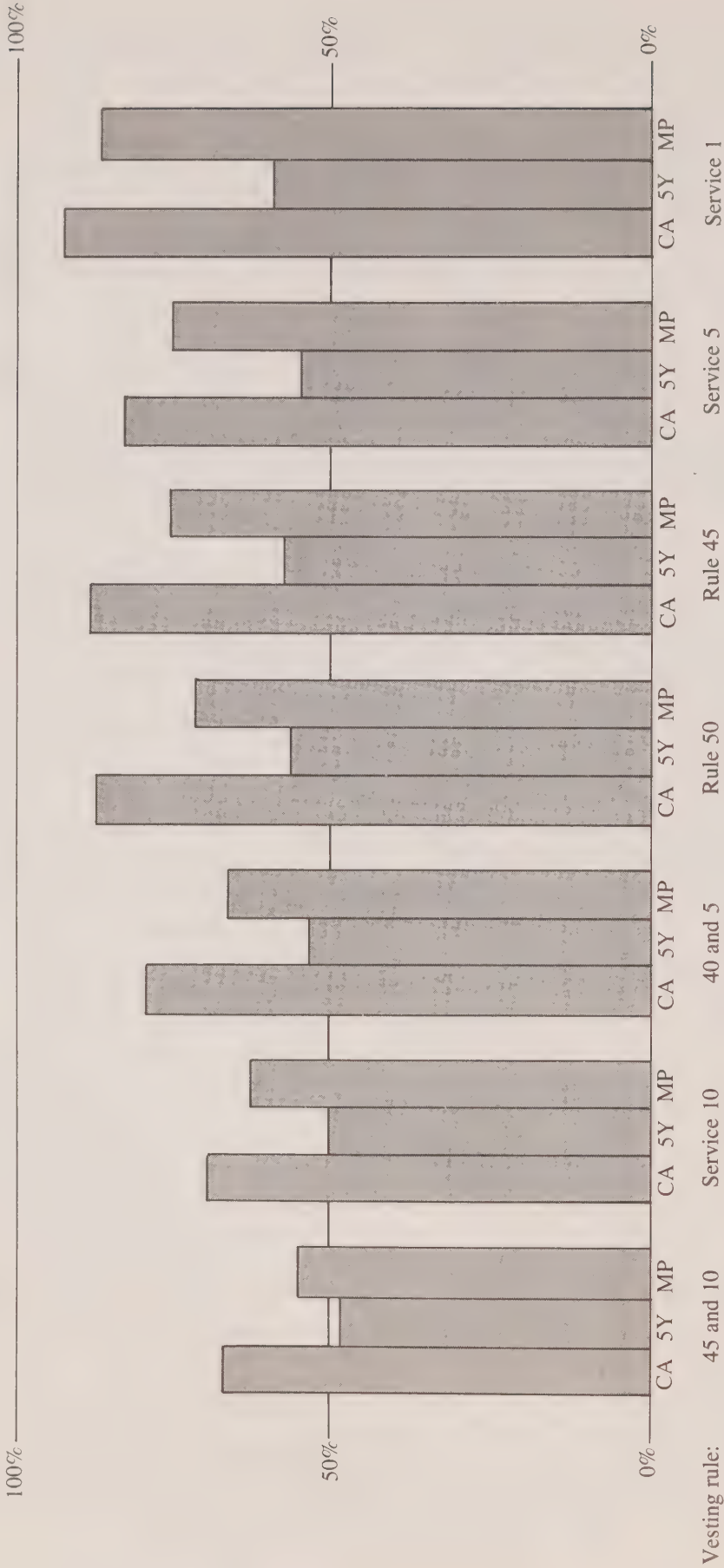
Under the final 5-year average plan the opposite feature is observed. (See Tables 14 and 20.) For example with vesting rule 45 and 10, high terminations and retirement age 65, the average service is 35.6 per cent of the maximum service but the average pension is 28.1 per cent of the maximum. The reason for this difference is that any vested deferred pension is based on earnings at or shortly before termination of employment, and its amount does not change to reflect later earnings. If termination had not occurred, all years of service would be pensionable on the basis of the 5-year average earnings immediately preceding retirement.

In summary we find that Rule 45 is more liberal than Service 5 for defined benefit plans, particularly at high termination rates. Service 5 is more liberal for money-purchase plans if termination rates are low, but less liberal if termination rates are high. Table 21 shows graphically the percentage of maximum pension preserved by various vesting rules for the three types of plans at medium termination rates.

The "sum" rules such as Rule 45 or Rule 50 are more advantageous for older employees, as their benefits will vest immediately by virtue of age alone as soon as they have met any minimum service requirements for eligibility. (However, the risk that employers would be more reluctant to hire workers 45 and over should be considered.) For younger employees a "sum" rule has both advantages and disadvantages. Under Rule 45, for example, an employee of 35 would have a vested entitlement with as little as 10 years' service; at age 40 the service required would be 5 years. An earlier age for vesting is most significant where money-purchase benefits are involved, since the period to retirement age may be longer and the effect of compound interest that much greater. Earlier vesting is also a clear advantage to members of non-contributory plans, regardless of the type of benefit. In contributory defined benefit plans on the other hand, the advantage is much less clear. The younger (and more mobile) employees in effect pay all or most of the cost of their accruing benefits. Accordingly, even under the present 45 and 10 rule, there is often very little employer money tied up in the vested deferred pension - but all the employee's contributions. Thus, a move to require vesting at an earlier age, if accompanied by a similar locking-in of employee contributions, would give younger employees in contributory defined benefit plans very little apart from a restriction on the use of their own money. Assuming that the value of the deferred pension is fairly related to the locked-in contributions, its size, unless indexed or otherwise upgraded, probably will seem trivial compared to that of a lump sum in the employee's hands today.

Despite the evidence that improved vesting might mean little more than a limitation on the freedom of employees, it is widely believed that it would impose significant costs on employers. Phase III of the study therefore is an attempt to determine the relative cost impact of the several vesting rules already defined.

Table 21  
 Percentage of Maximum Pension that Is Preserved Under Various Vesting Rules Combined with Career Average, Final 5-Year Average and Money-Purchase Pension Plans (CA, 5Y, MP), Medium Terminations, Retirement at Age 65



Source Royal Commission on the Status of Pensions in Ontario.



### Phase III - Vesting Costs

The Sahin-Balcer report quotes figures for definite benefit plans providing 1 per cent of earnings whether career or final 5-year average, for each year of service. The tables in this chapter are based on 2 per cent plans which are much more common in practice. Similarly, Sahin and Balcer use a money-purchase plan with 6 per cent total contributions, converted to 10 per cent in this chapter. The comparisons however are not affected by these changes.

The assumptions for Phase III are almost identical to those used in Phases I and II. The number of variables were reduced so that the Ontario public service terminations were eliminated. Entry age to the work-force was age 25 for both retirement groups, age 60 and 65.

In Phase III value of the lifetime pension benefit was determined for the various types of plans on a projected benefit cost method. This value is expressed as a level percentage of the employee's earnings and could be considered as a comparative measure of the employer's cost under certain highly restrictive conditions. Figures were developed to show both total cost and the employer's cost.

#### Effect of Vesting Rules on Pension Costs

Table 22 shows "total pension costs" in cases of low, medium, and high termination rates, three vesting rules and five pension plans based on the Commission's most probable inflation rates. Table 23 shows the employer's pension costs, that is, total cost less employees' contributions.

"Total pension cost" means the cost for an employee who enters employment at age 25, who is subject to specified probabilities of changing his or her job (which probabilities depend upon age and service), who is never unemployed, and all of whose employers have the same type of pension plan. The total cost will be shared between the employee and employer in a contributory plan. It will fall entirely on the employer in a non-contributory plan.

The total pension cost is expressed as a level percentage of the employee's wage or salary. Thus if the cost shown in Table 22 is 4 per cent of earnings, it means that contributions equal to 4 per cent of the employee's earnings throughout his or her working life would suffice to pay for the benefits from all plans in which he or she had vested rights. It does not, of course, mean that the cost to each employer is 4 per cent.

Table 22 does however show the value of the pension benefit to a new entrant. More important, it enables comparisons to be made of the cost effects of different vesting rules. Table 23 is of the same



Table 22

Total Pension Costs(a) (Value) as a Level Percentage of the Employee's Earnings

		Worklife 25-60				Worklife 25-65			
		Non-contributory		Contributory		Non-contributory		Contributory	
Vesting rule	Termination rates	CA	5Y	CA	5Y	CA	5Y	CA	5Y
		(Per cent)							
45 and 10	Low	6.18	11.38	7.40	12.60	8.47	5.40	10.66	6.70
Service 5	Low	6.88	12.22	7.66	12.96	9.02	5.88	11.22	6.92
Rule 50	Low	6.88	12.20	7.74	13.02	8.87	5.90	11.24	6.94
45 and 10	Medium	4.56	7.48	6.80	9.82	7.42	4.16	7.26	6.34
Service 5	Medium	5.86	9.08	7.36	10.50	8.30	5.10	8.34	6.82
Rule 50	Medium	6.16	9.34	7.64	10.78	8.17	5.42	8.62	7.00
45 and 10	High	2.84	4.36	7.10	7.62	6.43	2.72	4.32	5.84
Service 5	High	4.36	6.06	6.80	8.44	7.35	3.90	5.64	6.44
Rule 50	High	5.18	6.86	7.34	9.00	7.40	4.68	6.40	6.84

a Calculated using the Commission's most probable assumptions for inflation.

b Costs for money-purchase plans cannot be compared with those for defined benefit plans in the design of the model.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

Table 23  
Employer's Pension Costs(a) as a Level Percentage of the Employee's Earnings

Vesting rule	Termination rates	Worklife 25-60					Worklife 25-65				
		Non-		Contributory			Non-		Contributory		
		contributory		Contributory			contributory		Contributory		
		CA	5Y	CA	5Y	MP(b)	CA	5Y	CA	5Y	MP
		(Per cent)									
45 and 10	Low	6.18	11.38	2.40	7.60	3.47	5.40	10.66	1.70	6.92	3.37
Service 5	Low	6.88	12.22	2.66	7.96	4.02	5.88	11.22	1.92	7.18	3.82
Rule 50	Low	6.88	12.20	2.74	8.02	3.87	5.90	11.24	1.94	7.20	3.70
45 and 10	Medium	4.56	7.58	1.80	4.82	2.42	4.16	7.26	1.34	4.42	2.43
Service 5	Medium	5.86	9.08	2.36	5.50	3.30	5.10	8.34	1.82	4.94	3.18
Rule 50	Medium	6.16	9.34	2.64	5.78	3.17	5.42	8.62	2.00	5.12	3.25
45 and 10	High	2.84	4.36	1.10	2.62	1.43	2.72	4.32	.84	2.42	1.52
Service 5	High	4.36	6.06	1.80	3.44	2.35	3.90	5.64	1.44	3.08	2.32
Rule 50	High	5.18	6.86	2.34	4.00	2.40	4.68	6.40	1.84	3.50	2.42

a Calculated using the Commission's most probable assumptions for inflation.

b Costs for money-purchase plans cannot be compared with those for defined benefit plans in the design of the model.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

nature, except that employee contributions are deducted so that the value (cost) is the portion paid for by the employer.

The efficacy of a vesting rule in preserving pension rights can be judged by the number of years of service that are pensionable; or by the amount of annual pension that is preserved; or by the value (cost) of the pensions. The tables in this chapter allow comparisons to be made using each of these three criteria.

The cost figures in Tables 22 and 23 can be considered in two quite different ways. First, they represent the value of the pension to an average employee who is subject to the specified termination rates; the value is expressed as a level percentage of earnings each year through the working lifetime. Secondly, they provide an indication of relative cost to an employer who operates a pension plan with immediate eligibility and whose employees are subject to the specified termination rates, on certain very restrictive assumptions as to the age distribution of the employee and other factors. The figures should be used only for comparative purposes and offer no guidance as to the cost of any pension plan in practice.

Tables 22 and 23 show that in a career average non-contributory plan, with a worklife of age 25 to 60 and medium termination rates, the cost of the plan with vesting at 45 and 10 is 4.56 per cent of the employee's earnings and with vesting at Service 5 is 5.86 per cent of earnings. A change in the vesting rule to Service 5 would, therefore, raise the value of the employee's pension rights and raise the employer's pension costs. On the particular assumptions used in this calculation the additional cost in terms of a level percentage of employee's earnings would be 1.3 per cent.

Table 24 uses the figures in Table 23 to show the approximate expected increase in cost to the employer of changing the vesting rule from 45 and 10 to Rule 50 or Service 5 or to other vesting rules.

In Table 24, for example, we see that the cost of moving from a vesting rule of 45 and 10 to Service 5 in a non-contributory final 5-year plan with medium termination rates would be an additional 1.08 per cent of payroll. Moving to vesting Rule 50 would cost the same employer an additional 1.36 per cent of payroll. The highest cost to the employer (2.3 per cent) is generated by a move to Rule 45 in non-contributory final pay plans having high terminations, excepting of course for service 1 which is almost immediate vesting.

The following observations should be noted from Phase III:

1. Total cost in contributory plans is appreciably greater than in non-contributory plans. This is because employees in contributory plans who do not qualify for vesting on a job change must always receive the value of their own contributions.

Table 24

Expected Increase in Employer's Pension Costs(a) Expressed as Extra Percentage of Payroll Required for Changes from the 45 and 10 Rule to a New Vesting Rule - Working Years 25-65

Vesting rules	Low terminations				Medium terminations				High terminations			
	Non-contributory		Contributory		Non-contributory		Contributory		Non-contributory		Contributory	
	CA	5Y	CA	5Y	CA	5Y	CA	5Y	CA	5Y	CA	5Y
	(Per cent)											
Service 10	.14	.18	.04	.04	.20	.06	.04	.22	.10	.14	.02	.15
40 and 5	.36	.42	.18	.20	.80	.90	.22	.46	1.06	1.18	.54	.58
Rule 50	.50	.58	.24	.28	1.26	1.36	.66	.70	1.96	2.08	1.00	.90
Rule 45	.56	.64	.26	.30	1.38	1.50	.70	.74	2.16	2.30	1.06	1.10
Service 5	.48	.56	.22	.26	.94	1.08	.48	.52	1.18	1.28	.60	.80
Service 1	.66	.76	.32	.36	1.60	1.74	.80	.86	2.46	2.60	1.20	1.57

a Increases in cost for money-purchase plans cannot be compared with those for defined benefit plans in the design of the model.

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.



2. The cost to the employer in contributory pension plans of the career average type is less than half the cost of a similar non-contributory plan. (See Table 23.) However, this does not apply in final 5-year average plans, where the employer cost may be as much as 65 per cent of the non-contributory cost. In the case of contributory career average plans with high termination rates the employer cost may be negligible.
3. The cost of pensions payable at age 60 is more than the cost of pension at age 65, even though the pensions are smaller because of the shorter service.
4. Of the three vesting rules examined in Tables 22 and 23 of Phase III, Rule 50 (that is, vesting when years of age plus years of service total 50 or more) is generally more effective in producing pensions and is more expensive than vesting after 5 years' service, which in turn is better than the present rule of age 45 and 10 years' service.

#### Effect of Inflation on Pension Costs

Supplementary valuations of pension cost were made assuming higher and lower inflation than that assumed for Tables 22 and 23. High inflation was 2 per cent higher and low inflation 1 per cent lower than in the standard runs based on the Commission's most probable assumptions. These changes were reflected in both interest rates and wage increases. Tables 7, 8 and 9 of the Sahin-Balcer report show the results in considerable detail for the 1 per cent career average plan, 1 per cent final 5-year plan, and 6 per cent money-purchase plan.

The general effect of higher inflation is to lower the cost of defined benefit pension plans, although money-purchase plan costs are unaffected. (See Table 25.) Inflation also has a much more powerful effect on career average plans than on final 5-year average plans. In the former, inflation increases the gap between present earnings and earnings on which a vested deferred benefit is based, and between current and pre-retirement earnings.

From Table 25 it is possible to derive approximate adjustment factors set out in Table 26 for inflation rates higher or lower than those initially assumed. When applying these factors it should be remembered that they represent changes in total cost. The impact on employer costs will be sharply higher in a contributory plan if, as nearly always is the case, employees are required to contribute at a constant percentage of pay. In a plan that is financed by a total of 8 per cent of payroll, for example, with employees contributing at a fixed rate of 5 per cent, a 17 per cent reduction in total cost - 1.36 per cent of payroll - would reduce the employer's 3 per cent share to 1.64 per cent, for a cost saving of 45 per cent.

Table 25  
Employer's Pension Costs as a Level Percentage of the Employee's Earnings - Working Years 25-65

Vesting rule	Termination rates	Low inflation			Medium inflation			High inflation									
		Non-			Non-			Non-									
		contributory	CA	5Y	contributory	CA	5Y	contributory	CA	5Y							
		CA	5Y	MP	CA	5Y	MP	CA	5Y	MP							
(Per cent)																	
45 and 10	Low	6.44	11.68	2.70	7.94	3.37	5.40	10.66	1.70	6.92	3.37	3.94	9.02	.22	5.22	3.37	
Service 5	Low	7.02	12.38	2.96	8.24	3.82	5.88	11.22	1.92	7.18	3.82	4.26	9.40	.40	5.42	3.82	
Rule 50	Low	7.04	12.36	3.00	8.30	3.70	5.90	11.24	1.94	7.20	3.70	4.32	9.44	.42	5.44	3.70	
45 and 10	Medium	4.92	8.02	2.08	5.16	2.43	4.16	7.26	1.34	4.42	2.43	3.06	6.06	.24	3.16	2.43	
Service 5	Medium	6.08	9.32	2.64	5.80	3.18	5.10	8.34	1.82	4.94	3.18	3.70	6.82	.60	3.58	3.18	
Rule 50	Medium	6.40	9.60	2.88	6.04	3.15	5.42	8.62	2.00	5.12	3.25	4.00	7.10	.72	3.68	3.25	
45 and 10	High	3.20	4.80	1.30	2.90	1.52	2.27	4.32	.84	2.42	1.52	2.00	3.58	.10	1.60	1.52	
Service 5	High	4.64	6.36	2.02	3.72	2.32	3.90	5.64	1.44	3.08	2.32	2.86	4.54	.54	2.10	2.32	
Rule 50	High	5.50	7.20	2.56	4.24	2.42	4.68	6.40	1.84	3.50	2.42	3.52	5.18	.82	2.38	2.42	
Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.																	

The definite advantage of high inflation rates to employers with career average plans that are not upgraded has already been noted.

Table 26  
Approximate Adjustment to Total Pension Costs for Higher and Lower Inflation

	Non-contributory		Contributory	
	Career average	Final 5-year	Career average	Final 5-year
	(Per cent)			
2 per cent higher inflation	-27	-18	-17	-13
1 per cent lower inflation	+19	+11	+11	+8

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, table prepared by Laurence Coward.

#### Effect on Pension Costs of an Increase in the Real Rate of Return on Investments

Additional tests of the model used real rates of investment return .6 higher than those adopted by the Commission for its economic assumptions throughout the report. The results show that a higher real return would decrease employer cost significantly in defined benefit plans but only slightly in money-purchase plans. The decrease in cost for contributory defined benefit plans could be substantial, since in extreme cases the employee's contribution will pay for the whole of the benefit. This position arises in part because the interest credited on contribution refunds for employees who leave without vested pensions is at a lower rate than the interest earned by the pension fund. Detailed results showing the effect of a higher investment yield can be found in Table 10 of the Sahin-Balcer report.

#### Conclusions

The foregoing outlines the more salient features of the Sahin-Balcer study. The reader is urged to read the whole study carefully because its approach is novel and its conclusions of importance to the future of pensions in Ontario. The novelty consists in the attention given to the interaction of plan design and vesting rules from different viewpoints. As pointed out in the study, the employer is concerned primarily with the magnitude and predictability of pension cost, while the employee is concerned with the existence and value of the pension benefit. Government has an intermediate concern - the determination of rules that will provide an equitable distribution of pension benefits over all employees, and at a cost which will not discourage the development and continuance of employment pension plans. The study also shows that any one vesting rule will have different effects on different plan designs, so that more than one vesting rule might be appropriate. The comments that follow are based on the results of the analysis shown in the tables and figures in the study.

Table 27

Sahin-Balcer Study Assessment and Ordinal Rank of Plan Types in Terms of Various Factors and Criteria

Economic agent	Factor/criterion	Assessment (ordinal rank) of plan			
		CA	5Y	MP	
Worker	(1) Inflation	Fast deterioration of previous and current benefits (3)	Fast deterioration of previous, good follow-up by current job benefits (2)	Increase of past and current benefits with interest rate reflect-inflation (1)	
	(2) Age related benefit differentials	Very high age-related pension differentials (3)	High differentials with partial smoothing by current job benefits (2)	Differentials due only to vesting rules and termination rates (1)	
	(3) Comparability with current economic status	Very weak follow-up (3)	Comparability of 5Y with MP depends heavily on the timing of changes in terms of wage growth, interest rate, and annuity purchase; it may go either way (1-2)		
	(4) Comparability with current wage	Easy (2)	Easy (1)	Difficult, must be backtracked through annuities (3)	
	(5) Comparability with other assets	Difficult, should be based on annuities (2)	Difficult, should be based on annuities and wage growth in current job (3)	Immediate	



Table 27 (concluded)  
Sahin-Balcer Study Assessment and Ordinal Rank of Plan Types in Terms of Various Factors and Criteria

Economic agent	Factor/criterion	Assessment (ordinal rank) of plan		
		CA	5Y	MP
Firm	(6) Cost	Variable, depending on inflation (2)	Very variable, depending on inflation and promotion (3)	Known upper bound - rate of contribution (1)
	(7) Costing of plan	Difficult except under PTCM - hard projection of economic conditions (2)	Difficult - very hard projection of economic conditions, termination rates, and wage growth (3)	Almost immediate (1)
	(8) Labour mobility	Small relative reduction (3)	Large relative reduction as past years in current job are upped (1)	Small relative reduction (2)
	(9) Cost differentials related to hiring age	High differentials (2)	Very high differential due to wage at termination (3)	Small differentials due only to interaction of vesting rules (1)
	(10) Equitable distribution of pension	Lowest gini and coefficient of variation (1)	High gini and coefficient of variation (3)	Moderate distributional indexes (2)
Government	(11) Comparability of retired to non-retired	Inferior to 5Y (3)	Comparability of 5Y with on the timing of changes in growth, interest rate, it may go either way (1-2)	MP depends heavily in terms of wage and annuity purchase; (2)
	(12) Efficient allocation of labour	Less restriction on mobility is probably best (1)	High restriction on mobility (3)	Medium restriction on mobility (2)

## Effect of Plan Design

In Table 27, from the Sahin-Balcer report (Table 11), different plan designs are evaluated as they affect various factors and from different points of view. It will be a useful tool in considering policy changes. Ranking has been attempted in order to illustrate how the survey results may be used in arriving at judgments that take into account those interactions we consider most relevant.

Keeping this analysis in mind, we assess the effects of changing the vesting rules for the several plan designs.

## Effect of the Vesting Rules

This assessment covers the value of the benefit to the employee, equality in distribution of benefits among employees, and the effect on total cost and employer's cost. Three tables follow, one for each plan design, showing the ratios for benefit, cost, and equality - first in relation to the existing 45 and 10 vesting rule and secondly in relation to immediate vesting (Service 1). The Gini Coefficient Index referred to in the tables represents the equality of distribution of benefits over the group of employees. In Table 28 for example, where 45 and 10 is shown as 1.00, all other rules are less than 1 which means that all create more equal distribution of benefits than 45 and 10, with the lowest .10 for Service 1, low terminations, being the best or most even in distribution of benefits. Under the same heading the bracketed figures show Service 1 as the most equitable at 1.00 and all other rules increasingly less equitable, reaching 10.00 for 45 and 10 with low terminations.

The Sahin-Balcer study draws the following inferences from these tables:

1. Liberalizing the vesting rule will have a greater impact on career average plans than on final average plans (compare Tables 28 and 29).
2. Liberalizing of vesting will have a greater impact where termination rates are highest, for all plans.
3. Removing the age requirement from 45 and 10, e.g., changing to Service 10, will make only a marginal improvement in cost, benefits and distribution in defined benefit plans. The effect however is much more marked in money-purchase plans (see Table 30).
4. For defined benefit plans, 40 and 5 or Service 5 would produce about the same results, with Service 5 only marginally better in nearly all cases. Service 5 performs better than 40 and 5 for money-purchase plans.

5. For defined benefit plans, Rule 50 and Rule 45 produce better results than 40 and 5 or Service 5, with Rule 45 only slightly better than Rule 50. It is interesting to note how close the impact of Rule 45 comes to immediate vesting (Service 1). The variance between the last two rules, however is much greater for money-purchase plans. The largest variances among the rules for each plan design occur with high terminations.

For money-purchase plans it is clear that the best course would be to remove any age qualification for vesting. This would mean that vesting could occur at very early ages, and if locking-in were simultaneous, the monies would be locked-in at very early ages. In a money-purchase plan this is especially advantageous; since interest on locked-in monies will move up with inflation, terminated employees will not suffer as they now do in defined benefit plans, particularly in career average plans that are not updated.

For defined benefit plans the use of 40 and 5 could be preferable to service 5 to avoid the locking-in of employee contributions at early ages. Rule 45, which is closer to immediate vesting, also minimizes the problem of locking-in; it is also more costly.

From the analysis therefore, the best approach would seem to be the adoption of one rule for defined benefit plans and another for money-purchase plans. Comparability of rules would suggest the following options:

	CA	5Y	MP
Present vesting rule	45 and 10	45 and 10	45 and 10
Improved vesting rule	40 and 5	45 and 10	Service 5
Immediate vesting	Rule 45	Rule 45	Service 1

However the Commission sees the adoption of more than one vesting rule as too confusing and cumbersome. If so, then the study suggests that the choice should be a service rule without age qualifications. This would improve the delivery of pension from money-purchase plans slightly more than for defined benefit plans but would be beneficial for all types of plans. The locking-in problem, which is accentuated in defined benefit plans when the age qualification is removed, is discussed below.

The adoption of a sum rule such as Rule 45 would have the effect of vesting benefits immediately for all those aged 44 and over (assuming a one year eligibility provision). This is a desirable result for the protection of those who are at the point when time is running out for accruing a reasonable pension before retirement. On the other hand it would greatly increase the cost of hiring an older worker for an

Table 28

Selected Measures for Career Average Plans Indexed on the Corresponding Values Under the Rules 45 and 10 and Service 1 - Age Group 25-65, Most Probable Economic Assumptions

Termination rates	Vesting rules	Expected benefit (total cost) in non-contributory plans	Gini index in non-contributory plans	Expected cost in contributory plans	
				Total	Employer
Low	45 and 10	1.00 (.89)	1.00 (10.00)	1.00 (.95)	1.00 (.86)
	Service 10	1.02 (.91)	.86 (9.00)	1.01 (.96)	1.02 (.86)
	40 and 5	1.07 (.95)	.49 (5.00)	1.03 (.98)	1.11 (.93)
	Service 5	1.09 (.97)	.39 (4.00)	1.03 (.99)	1.13 (.95)
	Rule 50	1.09 (.97)	.29 (3.00)	1.04 (.99)	1.15 (.96)
Medium	Rule 45	1.10 (.98)	.23 (2.00)	1.04 (.99)	1.16 (.97)
	Service 1	1.12 (1.00)	.10 (1.00)	1.05 (1.00)	1.19 (1.00)
	45 and 10	1.00 (.72)	1.00 (6.50)	1.00 (.89)	1.00 (.63)
	Service 10	1.03 (.74)	.94 (6.00)	1.01 (.90)	1.03 (.65)
	40 and 5	1.19 (.86)	.50 (3.25)	1.06 (.95)	1.30 (.82)
High	Service 5	1.23 (.88)	.46 (3.00)	1.07 (.96)	1.35 (.85)
	Rule 50	1.30 (.94)	.25 (1.50)	1.10 (.98)	1.48 (.93)
	Rule 45	1.33 (.96)	.20 (1.25)	1.11 (.99)	1.51 (.95)
	Service 1	1.39 (1.00)	.15 (1.00)	1.13 (1.00)	1.60 (1.00)
	45 and 10	1.00 (.52)	1.00 (6.71)	1.00 (.83)	1.00 (.41)
	Service 10	1.04 (.54)	.97 (6.43)	1.01 (.83)	1.04 (.42)
	40 and 5	1.39 (.73)	.54 (3.57)	1.09 (.91)	1.65 (.68)
	Service 5	1.44 (.75)	.51 (3.43)	1.10 (.91)	1.71 (.71)
	Rule 50	1.73 (.90)	.22 (1.43)	1.17 (.97)	2.20 (.90)
	Rule 45	1.80 (.94)	.19 (1.29)	1.18 (.98)	2.26 (.93)
	Service 1	1.91 (1.00)	.15 (1.00)	1.21 (1.00)	2.43 (1.00)

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, Table 12.



Table 29

Selected Measures for Last Five Years' Average Plans Indexed on the Corresponding Values Under the Rules 45 and 10 and Service 1 - Age Group 25-65, Most Probable Economic Assumptions

Termination rates	Vesting rules	Expected benefit (total cost) in non-contributory plans	Gini index in non-contributory plans	Expected cost in contributory plans	
				Total	Employer
Low	45 and 10	1.00 (.93)	1.00 (1.46)	1.00 (.97)	1.00 (.95)
	Service 10	1.02 (.95)	.93 (1.31)	1.00 (.97)	1.01 (.96)
	40 and 5	1.04 (.97)	.81 (1.15)	1.02 (.99)	1.03 (.98)
	Service 5	1.05 (.98)	.77 (1.08)	1.02 (.99)	1.04 (.99)
	Rule 50	1.05 (.98)	.74 (1.08)	1.02 (.99)	1.04 (.99)
	Rule 45	1.06 (.99)	.72 (1.00)	1.03 (1.00)	1.04 (.99)
	Service 1	1.07 (1.00)	.68 (1.00)	1.03 (1.00)	1.05 (1.00)
Medium	45 and 10	1.00 (.81)	1.00 (2.00)	1.00 (.92)	1.00 (.84)
	Service 10	1.03 (.83)	.95 (1.94)	1.00 (.92)	1.01 (.84)
	40 and 5	1.12 (.91)	.71 (1.41)	1.05 (.96)	1.10 (.92)
	Service 5	1.15 (.93)	.68 (1.35)	1.06 (.97)	1.12 (.94)
	Rule 50	1.19 (.96)	.57 (1.18)	1.07 (.98)	1.16 (.97)
	Rule 45	1.21 (.97)	.54 (1.12)	1.08 (.99)	1.17 (.98)
	Service 1	1.24 (1.00)	.50 (1.00)	1.09 (1.00)	1.19 (1.00)
High	45 and 10	1.00 (.62)	1.00 (2.74)	1.00 (.85)	1.00 (.65)
	Service 10	1.03 (.64)	.97 (2.68)	1.00 (.86)	1.01 (.66)
	40 and 5	1.27 (.79)	.65 (1.79)	1.08 (.92)	1.25 (.82)
	Service 5	1.30 (.81)	.63 (1.74)	1.09 (.93)	1.28 (.83)
	Rule 50	1.48 (.93)	.43 (1.16)	1.15 (.98)	1.45 (.95)
	Rule 45	1.53 (.95)	.40 (1.11)	1.15 (.98)	1.47 (.96)
	Service 1	1.60 (1.00)	.37 (1.00)	1.17 (1.00)	1.53 (1.00)

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, Table 13.

Table 30  
Selected Measures for Money-Purchase Plans Indexed on the Corresponding Values Under the Rules  
45 and 10 and Service 1 - Age Group 25-65, Most Probable Economic Assumptions

Termination rates	Vesting rules	Expected benefit (total cost) in non-contributory plans	Gini index in non- contributory plans	Expected cost in contributory plans	
				Total	Employer
Low	45 and 10	1.00 (.84)	1.00 (7.00)	1.00 (.93)	1.00 (.85)
	Service 10	1.06 (.89)	.71 (5.00)	1.02 (.95)	1.06 (.90)
	40 and 5	1.08 (.90)	.62 (4.50)	1.03 (.96)	1.07 (.91)
	Service 5	1.14 (.95)	.35 (2.50)	1.05 (.98)	1.14 (.96)
	Rule 50	1.10 (.92)	.52 (3.50)	1.04 (.97)	1.10 (.93)
	Rule 45	1.13 (.94)	.40 (3.00)	1.05 (.98)	1.12 (.95)
Medium	Service 1	1.20 (1.00)	.14 (1.00)	1.07 (1.00)	1.18 (1.00)
	45 and 10	1.00 (.65)	1.00 (7.00)	1.00 (.86)	1.00 (.67)
	Service 10	1.09 (.71)	.85 (6.00)	1.03 (.87)	1.09 (.73)
	40 and 5	1.20 (.78)	.57 (4.00)	1.06 (.92)	1.20 (.80)
	Service 5	1.32 (.86)	.44 (3.00)	1.10 (.95)	1.31 (.87)
	Rule 50	1.29 (.84)	.45 (3.25)	1.09 (.94)	1.27 (.85)
High	Rule 45	1.36 (.88)	.35 (2.50)	1.11 (.96)	1.33 (.89)
	Service 1	1.54 (1.00)	.14 (1.00)	1.16 (1.00)	1.49 (1.00)
	45 and 10	1.00 (.46)	1.00 (6.71)	1.00 (.81)	1.00 (.49)
	Service 10	1.10 (.51)	.92 (6.14)	1.02 (.82)	1.10 (.54)
	40 and 5	1.40 (.64)	.57 (3.86)	1.09 (.88)	1.39 (.68)
	Service 5	1.55 (.71)	.49 (3.29)	1.12 (.91)	1.53 (.75)
	Rule 50	1.65 (.76)	.37 (2.43)	1.14 (.92)	1.59 (.78)
	Rule 45	1.81 (.83)	.29 (2.00)	1.17 (.94)	1.73 (.85)
	Service 5	2.18 (1.00)	.15 (1.00)	1.24 (1.00)	2.03 (1.00)

Source The Royal Commission on the Status of Pensions in Ontario, Sahin-Balcer study, Table 13.

employer with a defined benefit plan, and the Commission is concerned that legislation to obtain pension entitlement should not threaten the ability of older workers to obtain jobs. The sum rule also means that a younger employee would have to work for longer periods before achieving any vested benefits even though in the younger years job mobility is greater than for those at the older ages. For example, a 35 year old would have had to start at age 25 to accrue the 10 years' service required for vesting. Eligibility rules often provide that membership in the plan is not available to those under 30; in such a plan the earliest age at which the Rule 45 vesting condition could be fulfilled would be between age 37 and 38 with 7 or 8 years' service. While a sum rule is attractive for defined benefit plans in the Sahin analysis, the Commission prefers to achieve a reasonable balance between the needs of younger and older workers. Therefore, it favours a vesting rule based on service alone. The number of years' service to be required depends on which of the Commission's recommendations for the overall structure of the employment pension plan is implemented: 10 years of service or membership if the proposed mandatory plan is adopted; otherwise, 5 years. Full details of these alternatives are set out in Chapter 12, "Recommendations for Employment Pension Design."

#### LOCKING-IN

As noted by the Committee on Portable Pensions, a dilemma becomes apparent in the task of relating employee contributions to any vesting standard. If the objective of improved vesting is to preserve people's pension entitlement in the form of a deferred benefit, it might seem immaterial at first glance to distinguish between the employer-purchased and employee-purchased portions. Just as it is essential to "lock-in" employer money, so it is necessary to curtail the right of a terminating employee to withdraw cash and thereby forfeit all or part of the right to a pension at retirement age. At the same time, it is clear that many employees regard their contributions as personal savings which they should have the right to use as they see fit - especially if they are leaving a particular employer and pension plan. The policy dilemma is aggravated by the realization that younger employees in contributory defined benefit plans may in fact receive no benefit apart from the value of their own locked-in contributions; that is, their benefits involve no employer contributions and hence no vesting in the usual sense.

The present vesting rule in the Ontario Pension Benefits Act creates a right in a terminated employee who is at least age 45 and has 10 years' continuous service with the employer or 10 years' membership in the plan to a deferred life annuity at normal retirement age under the plan, based on pension credits earned to the date of termination. When

the employee has made contributions under the pension plan, the act prohibits the withdrawal of these contributions except

- (i) where the employee has not yet fulfilled the conditions for entitlement to a deferred life annuity, i.e., is not at least age 45 with 10 years' service or membership in the plan;
- (ii) where the vested employee elects, and where the pension plan permits, prior to normal retirement defined by the plan, to take as a lump sum an amount not exceeding 25 per cent of the commuted value of the deferred life annuity to which he is entitled by the vesting rule. This means that, except for the right to commute 25 per cent on termination, once an employee is vested by the 45 and 10 rule his or her contributions are "locked in." (28)

Locked-in contributions must remain in the employer's pension plan with one exception. The plan may permit the employee to have his or her pension benefit credit (i.e., the monies required to provide the deferred life annuity) transferred to another pension plan, an insurance company, or a registered retirement savings plan, provided that the monies so transferred cannot be used for any purpose other than a deferred life annuity. (O. Reg. 654, sec. 16)

Also in operation is a non-statutory locking-in created by the design of some pension plans. The act permits a plan to provide vesting or locking-in at any earlier age or with less service than the statutory rule requires. In practice, any such provision - except in a non-contributory plan - usually is in the form of "contingent" vesting. That is, a terminating employee who qualifies will be given the promise of a deferred pension only if that person's own contributions are not withdrawn.

In a contributory plan that provides contingent vesting, a terminating employee may be entitled to one of three possible types of benefit: statutory vesting, contingent vesting, or a refund of employee contributions. In a non-contributory plan, vesting will be at least the statutory minimum, and may be more generous; in any case it will not be "contingent." The operation of vesting in a contributory plan may be illustrated by means of three hypothetical employees, each terminating employment at a different age and with different periods of continuous service. In these examples we assume a money-purchase plan with matching employer and employee contributions. Full vesting is provided on a contingent basis, after 5 years' service and without regard to age:

#### Case 1

A terminates employment at age 47, having worked for 12 years with the employer. By law the employee is entitled to a deferred life



annuity in the amount which can be purchased by the total contributions of employer and employee, with accrued interest, payable at normal retirement age under the plan. Subject to the exceptions already mentioned, the contributions are locked-in and used to provide a life annuity at retirement age.

#### Case 2

B terminates employment at age 43, having worked for 5 years with the employer. The statutory 45 and 10 rule does not apply; but B has sufficient service for contingent vesting under the plan - that is, a deferred life annuity from both his or her own and the employer's contributions on retirement provided the employee's contributions are not withdrawn. If cash withdrawal is the choice, the employee forfeits the right to any benefit from the employer's contributions. The act does not operate to lock-in the employee's contributions because he or she has not yet fulfilled the statutory conditions; but in order to benefit from vesting under the terms of the plan, the person must "lock-in" his or her own contributions. In other words, the right to any benefit from the employer's contributions is "contingent" on the voluntary locking-in of employee contributions.

#### Case 3

C terminates employment at age 32, having worked for 3 years with the employer, and is not entitled to a deferred life annuity either under the act or the plan. This employee's contributions will be refunded (with or without interest), but there will be no benefit from the employer's contributions.

These examples, apart from illustrating the three general degrees of vesting, serve to demonstrate that a money-purchase plan gives the employee a clear picture of what is vested, what is locked-in, and what will be forfeited if the employee's contributions are withdrawn from the plan. In a defined benefit plan, on the other hand, the employee usually has no idea how much employer money (if any) is involved in providing the "vested" pension or stands to be forfeited if the individual chooses a lump sum settlement. In defined benefit plans this lack of information in itself is sufficient reason for dissatisfaction.

Before any attempt is made to evaluate that dissatisfaction - that is, to judge whether it is well-founded - it is useful to examine the nature of defined benefit plans, and especially how their funding differs from money-purchase.

In all types of plan, benefits are pre-funded; that is, money is paid into a fund regularly, accumulates with compound interest, and is available to be paid out in the form of pensions when plan members

meet the specified conditions. In its simplest or money-purchase form, a known amount of money is contributed periodically by employer and employee, accumulates interest, and creates a capital amount which is paid out as an annuity during the person's retirement years. Because of the compounding effect, the period of accumulation is vital: the longer the period, the greater the eventual value in relation to the amounts contributed. For that reason, a given amount contributed at age 25 and invested at 8 per cent will have roughly 14 times the value (at 65) of the same amount contributed at age 60.

Precisely the same principle underlies the funding method in a defined benefit plan; but here it is applied in reverse. For any specified benefit amount at retirement age, a capital value can be determined (using estimates of post-retirement interest and mortality). The current contribution then is the amount which, when invested at an assumed rate of interest, will produce the desired capital amount by the time the member retires. Again, the period of accumulation is crucial; but in this case it is the cost which varies according to the present age of an employee, not the amount of the eventual pension. Accordingly, using the same figures as before but transposing into a defined benefit framework, the same retirement benefit purchased now for a person aged 25 would cost roughly one-fourteenth as much as the same benefit purchased for someone aged 60.

From the foregoing it will be clear that the relationship between employee contributions (usually at a fixed rate of pay) and the amount of benefit credited for a given period of service will vary according to present age - or, more precisely, the number of years to retirement age. Similarly, the employer's cost varies - from little or nothing for the benefits of very young employees, to a relatively high proportion for older workers. (Conversely, in a money-purchase plan, both employee and employer contributions remain at the same rate throughout, but the rate of benefit accrual as a percentage of earnings decreases as the employee's age increases.)

Any discussion of vesting and locking-in accordingly must take into account the relationship at various ages between the value of employee contributions and the value of the vested (defined) benefit. While this problem does not arise in non-contributory plans, it is common to most contributory types. Its implications may be seen in the following extract from a working paper prepared by the federal Department of Insurance:

- "a) The table below indicates the situation in typical 'career average' pension plans under current economic conditions but where no updating of benefits has taken place. The interest rate assumed in the calculations is 6 1/2 per cent per annum and salary progression is 5 1/2 per cent per annum.

Entry age of plan member	Employee contribution rate as a per cent of salary	Benefit level as a per cent of salary	Age at which the value of accrued benefits is greater than the value of employee contributions accumulated at 6 1/2 per cent
25	5.0	2.0	62
35	5.0	2.0	55
45	5.0	2.0	47
25	5.0	1.5	after age 65
35	5.0	1.5	62
45	5.0	1.5	55

"b) A similar situation exists under 'final average' pension plans but the age at which the value of the accrued benefits is greater than the value of employee accumulated contributions will be somewhat lower than in the case of 'career average' plans. The table below indicates the situation in a 'final 5-year average' pension plan where the interest rate used in the valuation is 6 1/2 per cent per annum and the salary scale is 5 1/2 per cent per annum:

Entry age of plan member	Employee contribution rate as a per cent of salary	Benefit level as a per cent of salary	Age at which the value of accrued benefits is greater than the value of employee contributions accumulated at 6 1/2 per cent
25	5.0	2.0	50
35	5.0	2.0	49
45	5.0	2.0	47
25	5.0	1.5	55
35	5.0	1.5	54
45	5.0	1.5	53

"c) As can be seen from the first table, under certain career average plans, there could be, in addition to many locked-in terminated employees, also employees reaching retirement age, for whom the value of benefits is less than the value of their contributions."(29)

It is clear that any employee entitled to a vested benefit before the ages shown in the above tables would actually have paid at least the entire cost of that benefit. Most employees terminating under the conditions illustrated would have purchased more than the value of their entitlement. To prevent that occurrence, the Pension Benefits Act was amended in 1973 to stipulate that the pension benefit credit of a terminating employee must be at least equal to the value of that person's contributions.



Regardless of who is paying for the pension, employee or employer, locking-in means a disadvantage to the locked-in terminated employee in both career average and final average plans, especially in the latter. With inflation, both salary scales and nominal interest rates will rise sharply, but benefits earned by the terminated employee in terms of the pension promised do not. Therefore in many cases it would be to the advantage of a terminated employee to take out his or her own contributions and invest them elsewhere, even if it meant forfeiting any right to the employer's contributions. Once locking-in applies this cannot be done except by transfer as described above.

The debate over locking-in often turns on the degree of paternalism required to ensure that people receive pensions at the end of their working lives. If cash is available at termination, will it be spent on short-term satisfactions, reinvested in long-term capital acquisitions such as housing, or put into an alternative retirement income vehicle? If it is true over long periods and in various economic conditions that employees could do better by investing their contributions elsewhere than in the pension plans of former employers, the rationale for locking-in becomes tenuous indeed. It is natural for employees to compare the situation under contributory pension plans with that under RRSPs and Deferred Profit Sharing Plans, where the only obstacles to removing cash from the plans are the income tax consequences. Recent amendments to the Income Tax Act, allowing more flexibility in the disposition of RRSP accumulations, serve to underline the disparities. Registered pension plans provide only one form of benefit - a life annuity - regardless of the requirements of the individual pensioner. These facts may be viewed in the light of a general feeling that one should be able to control one's own money.

The experience of the United Church of Canada pension plan is probably typical of many plans.(30) The plan provides for full vesting after 5 years of pensionable service, but entitlement to the employer's contributions in the form of a pension benefit is contingent on the employee's leaving in his or her own contributions. The plan has a career average formula. An analysis of terminations under the plan in 1976 showed the following:

---

Number of terminations of membership in 1976	116
Number required to receive a cash return of their contributions because they had no vesting.	
(terminated before completing 5 years service)	60
Balance entitled to deferred pension credits	56
Members locked-in under provincial legislation	16
Balance of members with a choice of cash or deferred pension	40
Number electing cash	19 (48%)
Number electing deferred pension	21 (52%)

---



Statistics for the Hospitals of Ontario Pension Plan in 1976 and 1977 showed nearly 100 per cent of terminated employees electing cash withdrawal. Two hundred and ninety-three took cash out of 301 terminations. In general this plan covers low-paid, highly mobile workers.(31)

In discussing the question of improvements for terminated members, the United Church asserted that "considerations of individual equity give way to consideration of sharing for the good of the whole membership of the plan." A possible answer would be to restructure pension plans to provide a money-purchase formula for employer contributions. "However," the brief continues, "the effect of this restructuring transfers some of the employer resource from continuing members to terminating members which might be viewed with disfavour by the membership unless there was a coincident increase in employer contribution to the plan."(32)

From briefs and oral submissions, the Commission found a general desire on the part of employers, most professionals in the pension industry, unions, and women's groups for locking-in to occur simultaneously with vesting, and for both to apply at an earlier time than is now required under the Pension Benefits Act. Some desired immediate vesting and immediate locking-in regardless of age or service. Against this general opinion was the evidence of several people in the younger age group who were opposed to any locking-in of employee contributions, and the brief of William M. Mercer Limited which also recommended that the "locking-in" provision be eliminated. The brief stated:

"The present 'locking-in' of employee contributions is inconsistent with the position held by non-contributory pension plans and difficult to defend in the case of younger employees who may be entitled to a vested benefit of no greater value than their own accumulated contributions."(33)

If the concept of locking-in of employees' contributions is to be retained on the ground that pension design must provide pensions at the end of a person's worklife rather than small sums of cash accumulated after short service with several employers, the following matters have to be resolved:

1. At younger ages only the employee's money is locked-in to provide the pension benefit and the employer pays nothing for the employee.
2. The employee's money remains in the pension fund and could be subject to loss on wind-up in some circumstances.
3. Improvements of benefits which may result from higher nominal interest rates are seldom (if ever) applied to the benefit of terminated employees, even though the higher rates of interest are being earned on the terminated employee's money.

4. Individuals desire more options for the use of their own funds, especially if they think they could do better by choosing an investment vehicle outside the pension plan.
5. There are both real and perceived inequities in contributory pension plans as compared with non-contributory plans, RRSPs, and Deferred Profit Sharing Plans.

#### THE COMMISSION'S PROPOSALS

The Commission presents two proposals to deal with the questions of portability, vesting, and locking-in. The first proposal also deals with extending coverage for employment pension plans.

The first proposal is for a mandatory employment pension plan covering a work-force identical with that of the Canada Pension Plan, (i.e., 97 per cent of the work-force in Ontario) designed on a money-purchase basis, to create a fully portable pension up to levels related to the Average Industrial Wage at the time of retirement. This proposal is explained in Chapter 12, "Recommendations for Employment Pension Design."

The second proposal consists of recommendations dealing with vesting and locking-in, designed to alleviate some of the shortcomings of existing employment pension plans. This proposal seeks to improve portability through improvement of the vesting rule, in recognition of emerging job mobility patterns in business and industry. By itself, this proposal is not addressed to the problem of coverage; whether plans are established or maintained is assumed to continue to be a matter for voluntary decisions. The Commission has recommended a move to a ten-year service rule for all employment pension plans if the mandatory plan is adopted, and to a five-year service rule if the mandatory plan is not adopted. However even if there is no change to the vesting rule, and whether or not the mandatory plan is adopted, the Commission proposes certain changes in the rights of employees on termination to deal with the existing problems arising from locking-in and the preservation of pension rights in existing pension plans.

In treating the two proposals separately the Commission does not intend to suggest that they are mutually exclusive. On the contrary, certain aspects of our recommendations on portability are complementary to those dealing with extension of coverage. In any case we recommend certain immediate steps to deal with the preservation of rights in existing pension plans. If the mandatory plan were put into place immediately as the Commission advocates, it would be possible to entertain somewhat less extensive vesting improvements for benefits above the level provided in the mandatory plan, but some changes in vesting and locking-in are essential in any event.

## RECOMMENDATIONS FOR RIGHTS ON TERMINATION

The vesting rule affords a measure of protection for the terminating employee by protecting pension credits earned to the date of termination. The Commission agrees that an extension of protection to more workers through earlier vesting would be beneficial. By itself, however, earlier vesting is not enough. Therefore, even if the vesting rule is not changed from the present rule of age 45 with 10 years' service, the Commission recommends that rights on termination be governed by the following principles which should be incorporated in the Pension Benefits Act. The recommendations are for minimum standards only; a plan could provide better terms than those required by law.

### Termination Before Vesting

#### Contributory Plans

The employee is entitled to the return of his or her own contributions with interest calculated at one per cent below the annualized rate paid by Canadian chartered banks on non-chequing accounts, and compounded annually. The employee is not entitled to anything in addition from the employer's contributions.

#### Non-Contributory Plan

The employee is not entitled to any payment from the employer contributions.

At present, whether a terminating employee receives interest on his or her contributions depends on the terms of the plan. It is not uncommon for employees to receive no interest. When interest is paid it is often at a very low rate and may not be compounded. In times of high interest rates employees see these provisions as a great injustice. To require interest at the amount a person could get by depositing funds in the banks will mean an additional cost to the employer, but not one that will jeopardize the rights of active employees whose monies remain in the pension fund.

### Termination After Vesting

#### Contributory Defined Benefit Plan

- (i) The value of the accrued pension to date of termination, including improvements to the extent funded, is to be determined either
  - a) by establishing the cost of an equivalent insurance company annuity payable at the normal retirement age under the plan for life with no guaranteed term, at the best rate generally obtainable at the date of termination; or



- b) by computing the cost of the benefit using an interest rate or range of rates set or approved by the Pension Commission of Ontario.
- (ii) The value thus determined is then allocated as cost, half to the employee and half to the employer.
- (iii) Employee's Share of the Cost

The employee's contributions with interest calculated at one per cent below the annualized rate paid by Canadian chartered banks on non-chequing accounts and compounded annually, will be applied against the employee's share of the cost. Any excess over the employee's share of the cost will be refunded to the employee and will be taxable in his or her hands unless he or she elects to transfer it to his or her mandatory plan account (if adopted), to a regular RRSP or to his or her new employer's pension plan (if permitted by the new employer), as the employee may decide.

- (iv) Employer's Share of the Cost

The employer assumes the obligation of providing the deferred life annuity for the value of the accrued pension at normal retirement age under the plan. In this way the employer is not required to pay out cash for the employer's share of the cost now since this could have adverse effects on the liquidity and solvency of the fund if there were many terminations. The employer is obliged to bear at least one-half of the cost in the long run.

- (v) The value of the accrued pension is locked-in, subject to the right of a terminating employee to elect to receive the commuted value of the deferred life annuity where the amount of benefit payable at normal retirement under the terms of the plan is less than \$25 per month or such other minimal amount as may be set by regulation from time to time. This option should be made available to the terminating employee regardless of the terms of the plan; that is, the act should not (as at present) simply permit the plan to allow commutation of small amounts.

The rationale for an equal allocation of cost is a reflection of the understanding of most employees in contributory defined benefit plans. Time after time at its hearings, the Commission was told that the pension was paid for by a percentage deducted from the employee's wages and a matching contribution made by the employer. The employer's guarantee or the employer's obligation to pay the cost of pension at retirement was understood by few outside the pension industry. The Commission is most concerned about the general lack of comprehension of the workings of a defined benefit plan. The layman, labouring under the misapprehension that contributions are "matched," would be astounded



to see the evidence (in "Locking-in," above) that the employee alone purchases most of the benefit in an unimproved career average plan. The employee could fairly question the compulsion to join a pension plan in which his or her own money is locked-in at apparently low interest rates when he or she could readily utilize those funds for an RRSP or the purchase of a capital asset such as a house for long-term appreciation. If the defined benefit plan is not to be abolished completely, there must be some move to remove the inequities which are inherent in the design. The Commission believes the equal cost approach to vesting not only represents the popular understanding of such plans, but also recognizes, by requiring the employer to assume at least an equal share of the cost, that pensions are a form of "deferred wages." For the terminating employee, the Commission's approach removes the inequity of making the young employee pay for the whole or most of the cost of the accrued pension.

#### Non-Contributory Defined Benefit Plan

The employee receives a deferred life annuity based on pension credits accrued to termination as under the current legislation. The entitlement is locked in and is carried in the employer's plan subject to the commutation provisions for pensions with minimal monthly benefits. There are no rights to transfer the pension benefit out of the employer's plan.

#### Contributory Defined Contribution Plans

The above procedures will apply equally to defined contributions (money-purchase) plans, except that the cost sharing is already established and no valuation need be made.

#### Right to Transfer Out of the Employer's Plan

Objections to locking-in arise in part from the fact that there is no continuing link between the terminated employee and the employer. The terminated employee resents the fact that his money remains in the control of an establishment with which he was discontented or which was discontented with him. High interest rates in the market compared with those in the pension plan are ground for more ill feeling. In addition, as a worker acquires vested rights in several plans, the chances of remembering when and where to apply for the pensions decrease as time and distance separate worker and employer. The Commission therefore recommends that the vested employee should have the right to transfer out of the employer's pension fund the portion of the benefit, or the money equivalent, representing his own contributions with interest. There should be no right to transfer out the employer's half. In that way, contributory and non-contributory members will be treated alike. To maintain this equal treatment the employee in a contributory plan should have the right to have the half he or she paid for in money equivalent transferred to:

- a) that person's account in the minimum mandatory plan, if established;
- b) a special locked-in individual RRSP;
- c) the new employer's pension plan, provided that employer agrees to accept the transfer, and the monies are locked-in subject to transfer into a) or b) where applicable.

In this way the pension entitlement will be preserved through locking-in in some form. The way is also open to provide a greater measure of true portability if the new employer can be persuaded to incorporate the transferred funds into the benefit structure of the plan.

Employer-purchased vested benefits would continue to be carried as liabilities in the plan under which they were established. In this way, excessive transfers of assets would be avoided and there would be a minimum of disruption of the employer's pension planning.

The Commission sees no need to preserve or extend the existing 25 per cent commutation provision in section 21(4) of the Pension Benefits Act. With adoption of an equal cost sharing approach to the vested benefit - and especially the release to the terminating employee of his or her excess contributions - any further commutation privilege is unnecessary. If the original purpose of the present provision was, as it appears, to allow the employer to make some concession to employee objections to locking-in, the proposed treatment of employer and employee contributions (in all contributory plans and not only at the employer's option) would seem to be a more effective and equitable answer.

#### Post-Termination Improvements

As at present, the vested benefit would be determined by the plan provisions and other conditions as of the date the employee terminates employment. Assuming no continuing connection with the employer, the terminating employee will not receive the benefit of any subsequent plan improvements. However, he or she will have the right to transfer the money equivalent of the employee-paid portion of the vested entitlement to another pension vehicle, and in this way may enhance the value of the eventual retirement benefit.

#### Entitlement on Death Before Retirement

The rights of an employee must be similarly protected in the event of death before retirement; but the precise form of protection to be legislated requires consideration of the desirability of providing specifically for the surviving spouse (if any) or other dependents of the employee. Accordingly, the matter of pre-retirement death benefits is discussed under the heading, "Survivor Benefits," in Chapter 11.

The foregoing are recommendations on how rights are to be determined and protected on termination. The proposal is the same whether the mandatory plan is adopted and whether the vesting rule is changed or remains at age 45 and 10 years' service. These recommendations will involve a cost to employers even if there is no change in vesting rules; that effect may be of importance in deciding whether to improve the vesting rule and when to do so.

## Conclusion

Universality and portability are goals of perfection for voluntary employer-sponsored pension plans. Achievement of these goals requires rigidity and therefore government mandating. Satisfactory pension plan design to suit many circumstances requires flexibility. The vesting rule was an attempt to reconcile the two positions. It has worked well for some since the enactment of the Pension Benefits Act in 1965. The vesting rule cannot provide coverage where pension plans do not exist, but it can provide protection for those in pension plans.

The Commission therefore sees a mandatory pension plan as the answer to the problems of coverage and portability. Improved rights on termination are a partial answer to the portability problem alone. Once effective legislation has ensured both adequate pension coverage and minimum protection, supplementary plans should be encouraged to develop along lines most suitable for individual employers and groups of employees.

## NET REPLACEMENT RATIOS, ANNUITY INCOME: METHODOLOGY

The Commission retained Coopers and Lybrand, chartered accountants, to prepare comparisons of net income before and after retirement to ascertain the ratio of post-retirement to pre-retirement net income for persons retiring with specified amounts of annuity income in 1979. In calculating what we have called "net replacement ratios" the following gross income and other assumptions were supplied by the Commission:

- Pre-retirement income in 1978  
Post-retirement income in 1979  
Date of retirement was January 1, 1979
- The family units were one single taxpayer and a married couple. Each of these persons has a 65th birthday on January 1, 1979.
- Pre-retirement gross income (1978) for the single worker was calculated at three income levels: \$5,688, \$10,400, and \$13,746. The same levels were used for the married worker, with no outside income by the non-worker spouse.



Pre-retirement gross income (Dollars)		Post-retirement gross income	
		Single worker	Married worker - 2 pensioners
5,688	OAS	2,006.52	4,013.04
	CPP	1,420.92	1,420.92
	Annuity(a)	5,017.20	5,017.20
	Total	8,444.64	10,451.16
10,400	OAS	2,006.52	4,013.04
	CPP	2,616.72	2,616.72
	Annuity(a)	8,913.12	8,913.12
	Total	13,536.36	15,542.88
13,746	OAS	2,006.52	4,013.04
	CPP	2,616.72	2,616.72
	Annuity(a)	10,585.56	10,585.56
	Total	15,208.80	17,215.32

a Annuity amounts are based on 1976 average contributions by income, for Ontario RRSP contributors: \$537, \$954, and \$1,133 (see H. Weitz, RRSP study, Table 12, in background papers). Annuities were calculated by Laurence Coward, assuming level contributions for 25 years to age 65 at 8 per cent interest compounded annually. Capital funds available at age 65 are \$39,258, \$69,743, and \$82,829 respectively; and the monthly annuities are \$418.10, \$742.76, and \$882.12.

## Inflation

Effects of inflation were removed by expressing all amounts in January 1979 dollars. Thus, although OAS, GIS, and Spouse's Allowance are indexed quarterly, we assumed that the January 1979 amounts remained the same. In this way 1978 and 1979 dollars are comparable.

## Net Income

To determine net income, the accountants were instructed to apply actual tax calculations for employed persons (not self-employed) using the applicable basic personal exemptions, married exemption, standard medical exemption, and age exemption.

OHIP premiums of \$228 annually for a single person and \$456 annually for a family were deducted from 1978 gross income. Premium assistance was assumed where applicable. OHIP premiums were not included in the 1979 figures, as persons over 65 (and couples where one spouse is 65) are exempted from making payments.



For the calculation of property and sales tax credits we assumed rent was one-third of gross earnings in 1978. Rents were assumed to be 6 per cent higher in 1979 than in 1978 in line with rent control regulations.

The Unemployment Insurance retirement benefit was not included.

## NOTES

- (1) Even with the smaller target population for whom employment pensions are traditionally designed (excluding young, short service, and part-time workers) coverage is only 54.4 per cent according to Weitz.
- (2) See the Commission's "Consumer Survey," Table 8.
- (3) Ibid., Table 8.
- (4) Ibid., Table 9 and original tabulation.
- (5) Ibid., p. 37.
- (6) H. Weitz, "Contributors and Contributions to Registered Retirement Savings Plans in Ontario," in Volume VIII. Note that the advent of spousal RRSPs in 1974 have no effect on the distribution of participants by sex, since it is the contributor who obtains the deduction for tax purposes even when the plan's owner is the spouse.
- (7) Ibid., Table 6.
- (8) Ibid., Table 7.
- (9) Ibid., Tables 12 and 13.
- (10) Ibid., Table 14.
- (11) Ibid., Table 14.
- (12) See the Commission's "Consumer Survey," Table 26.
- (13) Ibid., Table 5.
- (14) Ibid., Table 7.
- (15) Ibid., Table 6.
- (16) Brief 132, p. 4, Samuel Eckler, F.S.A., F.C.I.A. of Eckler, Brown, Segal and Company Ltd.
- (17) See Volumes VI and VII: Employment Pensions for Ontario Public Sector Employees.
- (18) Brief 1, Canadian Life Insurance Association, p. 37.
- (19) CLIA, Report of the Sub-Committee on a Portable Pension Project.
- (20) Details of a common plan format are given in Brief 229, The Provincial Building and Construction Trades Council of Ontario.
- (21) See Volume V: Ontario and the Canada Pension Plan.
- (22) Ontario Committee on Portable Pensions, First Report, February 1961; Second Report, August 1961.
- (23) Ibid., Second Report, p. 44.
- (24) Ibid., Second Report, p. 44.
- (25) Ontario Public Service Employees Union, Brief 208, p. 5.

- (26) Ontario Committee on Portable Pensions, Second Report, p. 44.
- (27) This conforms to Section 21(4) of the Ontario Pension Benefits Act.
- (28) The Act does provide for payments in the event of mental or physical disability in certain circumstances (see Section 21(5b) and Section 17 of Ontario Regulation 654) and specifically exempts the employee's voluntary additional contributions (see Section 21(2c)).
- (29) Federal Department of Insurance, unpublished paper.
- (30) Brief 206, United Church of Canada.
- (31) Brief 305, Ontario Hospitals Association.
- (32) Brief 206, United Church of Canada, p. 10.
- (33) Brief 244.

## LIST OF TABLES

Table 1 - Employment Status of Survey Sample Population	3
Table 2 - Participation in Contributory Employment Pension Plans in Ontario, by Sex and Age Group, 1976	5
Table 3 - Pension Entitlement or Expectation, by Industry of Most Recent Employment	7
Table 4 - Paid Workers Age 18-64 by Sector, Full and Part-Time, 1976	9
Table 5 - Proportion of Tax Filers in Ontario Who Contributed to RRSPs, by Sex and Income Class, Selected Years, 1969-1976	11
Table 6 - Case 1, Single Life Annuity at Age 65, Monthly Payment from Sample RRSP Contributions for 25 Years at 8 per cent	18
Table 7 - Case 2, Single Life Annuity at Age 65, Monthly Payment from Sample RRSP Contributions for 15 Years at 8 per cent	18
Table 8 - Net Replacement Ratios: 1979 Post-Retirement Available Income from Government Programs and Selected Annuities (Males) Expressed as a Percentage of 1978 Pre-Retirement Disposable Income	20
Table 9 - Incidence of Job Mobility among Respondents Who Have Held at Least One Job	23
Table 10 - Incidence of Job Mobility among Retired Respondents Who Held at Least One Job	24
Table 11 - Incidence of Job Mobility among Respondents Who Have Held at Least One Job, by Age Group	26
Table 12 - Incidence of Job Mobility among Respondents Who Have Held at Least One Job, by Sex	27
Table 13 - Expectation and Coefficient of Variation in Number of Years of Career Pensionable Service - Worklife Starts at Age 20	41
Table 14 - Ratio of Pensionable Years of Service to Total Years of Service	42
Table 15 - Percentage of Total Service that Is Pensioned Under Various Vesting Rules Combined with Low, Medium, and High Termination Rates (L,M,H), Retirement at Age 65	44
Table 16 - Expectation and Coefficient of Variation of Pension Benefits Under 2 Per Cent Career Average Pension Plans Expressed as a Percentage of Final Wage - Worklife Starts at Age 20	49



Table 17 - Expectation and Coefficient of Variation of Pension Benefits Under 2 Per Cent Final 5-Year Average Plan Expressed as a Percentage of Final Wage - Worklife Starts at Age 20	50
Table 18 - Expectation and Coefficient of Variation of Pension Benefits Under 5 Per Cent Plus 5 Per Cent Money-Purchase Plan Expressed as a Percentage of Final Wage - Worklife Starts at Age 20	51
Table 19 - Ratio of Pension Benefits to Maximum Potential Pensions Under a Career Average Plan	52
Table 20 - Ratio of Pension Benefits to Maximum Potential Pension Under a Final 5-Year Average Plan	52
Table 21 - Percentage of Maximum Pension that Is Preserved Under Various Vesting Rules Combined with Career Average, Final 5-Year Average, and Money-Purchase Pension Plans, (CA, 5Y, MP), Medium Terminations, Retirement at Age 65	54
Table 22 - Total Pension Costs (Value) as a Level Percentage of the Employee's Earnings	56
Table 23 - Employer's Pension Costs as a Level Percentage of the Employee's Earnings	57
Table 24 - Expected Increase in Employer's Pension Costs Expressed as Extra Percentage of Payroll Required for Changes from the 45 and 10 Rule to a New Vesting Rule - Working Years 25-65	59
Table 25 - Employer's Pension Costs as a Level Percentage of the Employee's Earnings - Working Years 25-65	61
Table 26 - Approximate Adjustment to Total Pension Costs for Higher and Lower Inflation	62
Table 27 - Sahin-Balcer Study Assessment and Ordinal Rank of Plan Types in Terms of Various Factors and Criteria	63
Table 28 - Selected Measures for Career Average Plans Indexed on the Corresponding Values Under the Rules 45 and 10 and Service 1 - Age Group 25-65, Most Probable Economic Assumptions	67
Table 29 - Selected Measures for Last Five Years' Average Plans Indexed on the Corresponding Values Under the Rules 45 and 10 and Service 1 - Age Group 25-65, Most Probable Economic Assumptions	68

Table 30 - Selected Measures for Money-Purchase Plans  
Indexed on the Corresponding Values Under  
the Rules 45 and 10 and Service 1 - Age  
Group 25-65, Most Probable Economic  
Assumptions

69

## Chapter 9

# Assuring the Pension Promise: Funding Employment Pensions

Pension funding is concerned with the setting aside of monies now for the payment in the future of benefits promised under the pension plan.

History records many examples of employment pensions and insurance schemes that failed for lack of proper funding. It may be tempting to operate such plans on a pay-as-you-go basis, which simply means paying current claims out of income without building up a reserve fund. This method may prove workable in some situations: for employees and retirees if the enterprise continues to operate and pay benefits for as long as any entitlements remain; for the employer if the cost of pensions does not become excessive due to a rapid aging of the work-force.

In the early days many friendly societies and employers used a pay-as-you-go system to provide medical and death benefits. Many pension funds were financed on the same basis. They relied on the stability of their membership or work-force. Unfortunately, if the number of contributing members or employees declined, the cost per person tended to increase. If new entrants decreased, the group became older on the average, which led to higher death, disability, or pension claims when fewer employed members were available to support the claimants. Sharp increases in cost were often the result, which further reduced the new entrants and headed the plan towards disaster, the only alternative being to reorganize the plan and cut back the benefits.

Pay-as-you-go pension plans continued to exist in Ontario until 1965 when the Pension Benefits Act established standards of solvency. Several other provinces have since followed Ontario's lead, but pay-as-you-go is still legal in four provinces.(1) However, most employers had

realized the advantage of a funded plan and the dangers of an unfunded plan even before there were any legal requirements, particularly as funding was encouraged by the Income Tax Act, which allowed employer contributions as a deduction from income for tax purposes. Where the employees contributed to the plan there had to be a fund for their contributions, and employers generally added to it so as to put the funding on a sound basis. While the funding was sometimes weaker than would now be permitted, the principle that an employment pension plan should be funded on an actuarially sound basis was well recognized.

The main purpose of funding is to ensure that the employee will receive the promised benefits when they fall due, regardless of the fortunes of the employer. As pension rights are frequently the largest asset that a worker acquires in his or her lifetime, the loss of pension due to a change of circumstances or bankruptcy of the employer could give rise to serious hardship. An aging or retired worker is in no position to make up the loss. A funded pension plan protects the employee; it also helps the employer recruit and retain workers.

A second purpose of funding is to spread the employer's cash payments in an orderly manner so that they do not rise uncontrollably or vary greatly from year to year. This enables the employer to plan ahead, to budget realistically and to know production costs, all of which are important in a competitive world.

#### FUNDING AND PLAN TYPES

In a funded pension plan the employer makes payments to a pension fund held by a third party: an insurance company (an "insured" plan) or trustees (a "trusteed" plan), for the benefit of employees. The employer's contributions together with the members' contributions, if any, are calculated on a basis sufficient to support the pension and other benefits promised by the terms of the plan.

The original distinction between insured plans and trustee plans is described by Laurence E. Coward as follows:

Prior to...(1961)...the distinction between trustee and insured underwriting was very clear. All insured plans then provided pension benefits guaranteed by the insurance company in return for premiums determined from the insurer's ratebook. The risks of mortality as well as investment performance were borne by the insurer. The payment of pensions to those who worked through to retirement was guaranteed absolutely, although gains from favourable factors could be shared through dividends or experience rating systems.

By contrast, trustees were responsible only for the investment and safekeeping of their pension funds, in return for a fee, but did



not bear any risks....A trust fund...allowed the employer to have greater say in the investment policy and permitted the fund to earn the full investment return, unaffected by any "middleman".(2)

Thus, of the four underwriting methods which insurance companies make available, only group annuity contracts and individual annuity contracts are regarded here as insured plans. These two types of plan can always be considered fully funded for our purposes and will not be discussed further in this chapter. On the other hand, deposit administration and segregated funds arrangements of insurance companies are regarded as essentially trustee plans.

Trustee plans are of two kinds: defined contribution plans (money-purchase) and defined benefit plans (flat benefit, career average, or final pay plans).

A defined contribution plan defines its own funding procedure. The promise is for a contribution rather than a pension - which will be whatever amount the contributions with interest will purchase. Because a defined contribution plan by definition is always fully funded, this plan type presents no problems of funding in the sense used in this chapter.

A defined benefit plan is quite the opposite. It specifies certain pension credits or entitlements based on service and/or earnings, so that the amount of pension to an employee at retirement age can be specified; but a plan for financing that benefit must be developed. This involves extensive actuarial work, and it is this actuarial work - related to defined benefit plans and not money-purchase plans - which is described briefly in what follows and in greater detail in the Appendix at the end of this chapter.

Since a defined contribution plan is always fully funded it fulfils the two purposes for funding mentioned above. The defined benefit plan because of its nature involves complexities in funding which give rise to questions about the soundness of the funding of the plan at any point in time. The funding question is complicated by the fact that a pension plan may be discontinued by the employer at any time during the progression of the funding process, which means at any time during the worklife of an employee or even after retirement.

Funding of a pension plan may therefore be viewed in two general ways:

1. On an ongoing basis

This basis assumes that the funding process will continue in perpetuity or until every member covered by the plan has either terminated employment or retired and all payments due to such members have been paid out in full. In theory, all

deficiencies which may arise in the course of the funding progression will in the long run have been discharged. This basis assumes that the employer will continue the plan and will be in a financial position to make all the required payments into the plan.

## 2. On a wind-up basis

This basis acknowledges that the employer may choose to discontinue the plan at any point in time or may become financially unable to make the contributions required under the funding pattern. Then the question is whether at the time of wind-up there are sufficient monies accumulated to pay the promised benefits to the extent they have been earned up to that time.

If one looks at a plan on an ongoing basis the real concern is whether the amount of potential liability being assumed by the employer is within the capabilities of that employer to pay in the future. The investment policy of the plan is of importance because it assists the employer in providing monies to pay the benefits in the future.

If the employer is unable to continue the plan, assessment must then be made on a wind-up basis. In that case the concern is how the accrued monies are to be matched with the earned benefits; what constitutes earned benefits (e.g., are non-vested employees entitled to any benefits?) and what happens if the assets are insufficient to pay all the earned benefits.

It is clear that in the funding of defined benefit plans both ways of assessment are relevant; but for the individual employee the concern is most likely to be what his or her position will be on a wind-up basis.

## THE PENSION BENEFITS ACT

Detailed requirements for the funding and solvency of employment pension plans are prescribed under the Ontario Pension Benefits Act which came into force January 1, 1965. Until that time, except for any funding requirements imposed indirectly through the administration of the Income Tax Act, pay-as-you-go and terminal funding were open to the employer in Ontario. This is still the case in British Columbia, New Brunswick, Prince Edward Island, and Newfoundland.

The Pension Benefits Act authorizes regulations "prescribing tests and standards for solvency of pension plans." (3) The regulations define solvency: "Every pension plan shall be deemed to be solvent if it is fully funded or provisionally funded." (4) These funding concepts are defined as follows:

"fully funded" when applied to a pension plan means a pension plan that at any particular time has assets that will provide for the payment of all pension and other benefits required to be paid under the terms of the plan in respect of service rendered by employees and former employees prior to that time, and has no unpaid initial unfunded liabilities or experience deficiencies.(5)

"provisionally funded", when applied to a pension plan, means a pension plan that at any particular time has not assets sufficient to make it fully funded but has made provision for special payments sufficient to liquidate all initial unfunded liabilities or experience deficiencies.(6)

Arising out of these definitions are three more concepts which complete the framework for the solvency standard under the act:

"initial unfunded liability" means the amount by which, on the 1st day of January, 1965, or the date on which a pension plan qualifies for registration, or subsequently as a result of an amendment or as a result of a change in actuarial assumptions, the assets are required to be augmented to ensure that the plan is fully funded.  
(7)

"experience deficiency", when applied to a pension plan, means any deficit, determined at the time of a review of the plan, that is attributable to factors other than,

- (i) the existence of an initial unfunded liability, or
- (ii) the failure of the employer to make any payment as required by the terms of the plan or by the Act or this Regulation.(8)

"special payment" means a payment or payments made to or under a pension plan for the purpose of liquidating an initial unfunded liability or experience deficiency in accordance with section 2.  
(9)

(In this chapter, as in the Appendix, the term supplemental liability will be used when referring to the total of initial unfunded liabilities and experience deficiencies; or generally all liabilities not covered by normal or current service contributions).

The regulations that next follow deal with the actuarial report required to inform the Pension Commission of the state of a pension plan as it relates to the tests of solvency set out in the regulations. The act itself makes funding in accordance with the regulations a prerequisite to registration(10) and provides for deregistration if the plan fails to meet the tests for solvency.(11)



All of the foregoing deals with the pension plan on an ongoing basis. We will see later in this chapter how all of these concepts are very important in practice and how essential the actuarial work is to the effective operation of the solvency standard.

The implications on the wind-up of a pension plan are set out in Section 22(2) of the Act:

Upon the termination or winding up of a pension plan filed for registration as required by section 18, the employer is liable to pay all amounts that would otherwise have been required to be paid to meet the tests for solvency prescribed by the regulations, up to the date of such termination or winding up, to the insurer, administrator or trustee of the pension plan.

This is a clear statement of the principle that the employer's obligations for funding under the plan do not extend beyond the date of wind-up. It is the principle upon which pension plans on a voluntary basis have been encouraged in Ontario for the last fifteen years. It is also the reason for the stringent funding regulations under the act, including the comparatively short periods for amortizing experience deficiencies (5 years) and initial unfunded liabilities (15 years).

The principle that an employer's obligations cease when a plan is terminated is compared, later in this chapter, with that of a continuing obligation as reflected in U.S. pension legislation: longer amortization periods, coupled with plan termination insurance and a claim on the employer's assets up to 30 per cent of net worth.

The principle in Section 22(2) is important for its effects on the individuals under a plan that is terminated. The cessation of obligations for the employer includes the cessation of the obligation to make the special payments required to fund any initial unfunded liabilities and any experience deficiencies which remain at the time of wind-up. For the individual this will mean that some of the "promised" benefits, although already earned, will not be paid because there are not yet monies in the fund to pay for them. A similar provision dealing with additional benefits arising from plan amendments is to be found in Section 21(9) of the act:

Notwithstanding subsections 1 and 2 and notwithstanding any provision of a pension plan, upon the termination or winding up of a pension plan where,

- (a) the benefits arising from the deferred life annuities prescribed in subsection 1 include additional pension benefits provided by an amendment to the terms of the plan made after the qualification date or by the creation of a plan after the qualification date, in respect of service prior to such amendment or creation; and



(b) the funding of such additional pension benefits, as required by the regulations, has not been completed,

the amount of such additional pension benefits may be reduced in accordance with the regulations.

The design of the Pension Benefits Act puts emphasis on the protection of the benefits to retired employees and to those vested under the act and entitled to a deferred life annuity. We see in the definition of "fully funded" a concern that the assets at a particular time be sufficient to provide for "all pension and other benefits required to be paid under the terms of the plan" for service by employees and former employees rendered to that time. The terms of the plan, if more liberal than the minimum benefits protected under the act, will govern rights on a wind-up. "Pension benefits" are defined in the act; "other benefits" are not. Pension benefits are the periodic benefits to which a person is or will become entitled on retirement. "Other benefits" could be disability benefits, early retirement rights and similar features not included in the basic pension definition. If an employee has not become vested either under the plan or the act at the time of wind-up he or she may not receive any benefits at all. The assets will be applied first for those with vested rights.

It may be, however, that the assets are more than sufficient to provide for all benefits specifically protected under the act. In the absence of any additional protection (and if permitted under the terms of the plan) these remaining assets could revert to the employer. Accordingly, the regulation prohibits any recovery of plan monies until all accrued benefits, vested and non-vested, have been provided for:

...no part of the assets of the plan shall revert to the benefit of the employer until provision has been made for all pensions and other benefits in respect of service up to the date of such termination or winding-up to members of the plan and for all benefits to former employees, pensioners, dependants and estates....(12)

Thus we see that non-vested employees will be protected only where all vested employees have been provided for and the assets are greater than required for that purpose.(13) Rightly or wrongly, the act has placed its basic protection on the vested employee, probably on the assumption that the short-service employee is the young employee who still has many years in which to accrue pension benefits. The Commission does not accept this assumption, and sees the concern of non-vested employees for adequate funding as a valid one. (The question of non-vested earned rights assumes even more importance if one favours the deferred wage theory of pensions).

As it now stands, the Pension Benefits Act has created minimum standards of solvency which have been in effect for fifteen years. How well or how badly have these funding standards protected pension

plan members? To answer this question it is necessary to understand the terminology in which the financial soundness of pension plans is expressed. This terminology is found in the Pension Benefits Act and in actuarial practice. Thus we find the terms "experience deficiency," "initial unfunded liability," "unfunded actuarial liability," "actuarial liability," etc., which are terms of art. If one talks of "large unfunded liabilities" what does this really mean? Are such liabilities good or bad - important for the plan, important for the employee? In order to determine the significance of unfunded actuarial liabilities it is necessary to examine the role of the actuary and then to consider the present funded status of pension plans in Ontario.

### The Role of the Actuary

The administrative rules of the Pension Benefits Act require the employer to have the pension plan reviewed and a report filed with the Pension Commission of Ontario at least every three years. The person designated under the regulations to prepare this report is an actuary, who must be a Fellow of the Canadian Institute of Actuaries.(14) The actuary performs the key role in determining the financial soundness of a pension plan. That role has been described as follows:

The primary goal of the actuary is to make certain that the pension plan accumulates sufficient funds over the working years in order to provide the pension benefits promised to an employee in his retirement years.(15)

Just how the actuary reaches this goal is described in detail in the Appendix to this chapter. Understanding the technical aspects of the actuary's work is essential to an understanding of some of the problems, real and imagined, which have occurred in the funding of defined benefit plans. Where necessary, some of the mechanics are summarized in the text, but readers who are unfamiliar with the actuarial process are referred first to the Appendix.

While the statement of the goal makes the concept appear simple its implementation is highly complex. It seems truly to have reached the state of an art rather than an exact science. The fact that different actuaries can produce very different answers for the same plan is openly acknowledged by the actuarial profession itself.

The following excerpt is from the Toronto Globe & Mail Report on Business, June 22, 1979:

When two actuaries look at the same employee pension plan and employee data and produce actuarial cost estimates that vary by as much as 50 per cent, or even 10 per cent, the result is usually a confused or angry client.

T. R. Suttie, retiring president of the Canadian Institute of Actuaries, believes the institute should give top priority to this problem, which touches directly on the credibility of the actuary.

"We have to strike a difficult balance between allowing sufficient scope for professional judgment and ensuring that the variation in cost estimates is not so great as to destroy confidence in our profession," he told the institute's annual meeting.

This condition exists partly because of the many actuarial assumptions which involve the exercise of individual judgment, and partly because of the variety of actuarial funding methods which can be used for each different type of plan. Actuaries can use the same actuarial assumptions with the same employment pension plan and membership and produce widely different answers for the funding pattern and overall "costs" because they are using different actuarial funding methods. All should achieve the same result in the long run, that is, accumulation of the necessary pension fund by the employee's age 65. However, the ways they arrive at that result can be very different indeed. The actuary has almost complete latitude in the choice of funding methods and actuarial assumptions, subject to the standards of professional practice and the wishes of the sponsor of the pension plan. The results of various choices on the funding and solvency of a plan are extensive. These are analyzed separately: first we see how the choice of actuarial funding method affects the current service cost and therefore the amount of the annual contributions and also the size of the liabilities of the fund; next we see the effects of various actuarial assumptions; and finally we examine actuarial valuation techniques for determining overall solvency.

### Actuarial Funding Methods

A great variety of actuarial funding methods are possible in theory; six are common in Ontario. They are not readily identified by the layman, however, because some are known by several different terms and some of the terms are used interchangeably. Table 1 sets out these six methods by the names under which the Commission has chosen to discuss them in this chapter and the Appendix, the terms by which they are commonly known, and the plan types for which they are commonly used.

With each actuarial funding method two key values are developed, the normal contribution and the actuarial liability. The normal contribution can be described as the amount, on the basis of the actuarial funding method that has been chosen, that should be paid in respect of the current year of service. The actuarial liability is the amount of money that should be on hand for the plan to be fully funded at a given time under the Pension Benefits Act, according to the funding method used. It is the sum of all normal contributions which should have been made to that point and any supplemental liability, reduced by any



benefit payments that have been made, all with interest earned thereon and adjusted for actuarial gains or losses.

Table 1

Leading Actuarial Funding Methods in Use in Ontario

Name of method	Terms in common usage	Plan types where used		
		Flat benefit	Career average	Final pay
Accrued benefit				
- unprojected	(Single premium Unit credit	X	X	
- projected	(Accrued benefit Unit benefit			X
Level premium				
- constant dollars	(Level premium	X		
- constant per cent of salary, entry age normal	(Entry age normal Entry age level premium		X	X
- constant per cent of salary, attained age normal	(Attained age normal Attained age level premium		X	X
Aggregate funding	Aggregate funding		X	X

A number of examples to illustrate how very different the results of the various funding methods are for each of three types of plan (flat benefit, career average, and final pay) have been developed in the Appendix under ACTUARIAL FUNDING METHODS. In summary we found:

Flat Benefit Plan (Applicable methods: Accrued Benefit unprojected; Level Premium)

Normal contributions are much lower for the Accrued Benefit unprojected method in early years, rising to the same amount in the middle years and to five times greater in the later years than for a Level Premium method. Total ultimate cost under the Accrued Benefit unprojected method is nearly twice as much as under the Level Premium method. The difference is made up in extra interest earnings on the larger contributions required in the early years under a Level Premium method. Under the Accrued Benefit unprojected method, even if the same amount of pension benefits is earned each year, normal contributions must increase year by year under the Accrued Benefit unprojected method since there is less time left to accumulate interest. This method will produce increasing total contribution rates if the work-force is aging, since the employer is faced with increasing cash requirements to pay pensions as they mature.



Career Average Plan (Applicable methods: Accrued Benefit unprojected;  
Level Premium - entry age normal and attained age normal)

The same results are seen for the career average plan as for the flat benefit plan and between Accrued Benefit unprojected and Level Premium methods. As between the two Level Premium methods, entry age normal has a lower normal contribution but also has to pay off a supplemental liability and therefore in total requires a higher payment than attained age normal. Entry age normal also has a higher unfunded actuarial liability. It is said to be more conservative than attained age normal.

Final Pay Plan (Applicable methods: Accrued Benefit projected; Level Premium)

Because a method of projecting accrued benefits is required to take into account final salaries, the Accrued Benefit projected method does not vary from the Level Premium as much as it does in the other two plan types. Benefits actually earned in a final pay plan are always climbing in succeeding years as salaries increase. The projected accrued benefit method has the effect of smoothing out contribution rates over the years. Accrued Benefit projected is more conservative than Accrued Benefit unprojected because the earnings base is higher.

Level premium methods work very differently than accrued benefit methods. Under accrued benefit methods a specified amount or unit of pension benefit is associated with each year of the employee's service, and it is to be paid for or purchased outright by the annual normal contribution. Level premium methods, on the other hand, are more like instalment payment plans in that the cost of the total eventual pension to be earned for all years of service, past and future, is first calculated, and equal annual instalments to pay for it are then calculated. Entry Age Normal is the most conservative of the level premium methods.

The remaining method is the Aggregate Funding method which is used in career average and final pay plans. Under Aggregate Funding in general, all unfunded actuarial liabilities are included in determining the year's normal contribution so that no supplemental liabilities are isolated. In effect therefore the Aggregate Funding method allows the cost of past service pensions to be written off in a different manner from that provided under regulations of the Pensions Benefits Act. The Aggregate Funding method would spread the payments over the period from the employees' attained ages to age 65, e.g., over 32 years instead of the 15 years allowed by the regulations. Moreover the payments would be expressed as a percentage of salary of all plan members. Thus the payments would tend to rise as salaries rose but tend to fall as members retired, died, or terminated. In some cases the funding would be less rapid than contemplated by regulation, in other cases more.

Contributions of course are redetermined at each actuarial valuation date.(16)

The examples in the Appendix show that all the methods examined will provide the necessary funds for retirees' pensions if the plan continues to operate indefinitely, i.e., is a "going concern." A second vital consideration is whether the funding will be such that if the plan is discontinued at any time there will be enough money in the fund to purchase or provide all the promised pension benefits.

All the methods examined use the "going concern" concept. This means taking a very long-term view in selecting actuarial assumptions. It also means recognizing liabilities and making payments on the basis that the plan will continue in operation, and the benefits promised to employees will be delivered. On an ongoing basis vesting is ignored, in the sense that contributions are required for non-vested as well as vested benefits. Also, payments for the final pay plans are based on projected earnings, although in the event of termination of the plan the benefits would be based on the level of actual earnings to date. On the other hand, discounts for future terminations are made in the calculations and would not apply in the event of plan termination. On balance, therefore, it seems probable that funding under all of these methods would, in the event of plan termination, provide all pensions to retirees and cover all other vested benefits as well as a major part of the accrued pensions of employees who were not yet vested. The main factor which might interfere with this would be the existence of supplemental liabilities (experience deficiencies and initial unfunded liabilities) with a number of years' instalments remaining unpaid. (Supplemental liabilities are discussed in detail later in this section under the heading, "Actuarial Valuations.")

The more conservative the funding method - that is, the more money that is set aside in relation to liabilities - the greater the probability of meeting all the liabilities in the event of plan termination. The examples show that the level premium methods are more conservative than the accrued benefit methods. Perhaps aggregate funding is more conservative than the accrued benefit methods; certainly it is less conservative than the level premium methods. Generally, plans using accrued benefit funding methods will meet a major proportion of the liabilities unless only a small number of special payments have been made on account of supplemental liabilities by the time of wind-up. It follows that aggregate funding should do about as well and the level premium methods will do even better than accrued benefit methods in providing adequate funding.

It is clear, therefore, that the choice of the funding method has important cost results for the employer, and important security results for the plan member.

## Choice of Actuarial Funding Method

The employer has the right to choose the actuarial funding method subject to any legal restrictions, but normally accepts the recommendation of the actuary. The type of pension plan will dictate that only certain methods will be acceptable to the actuarial profession, pension supervisory authorities and taxation authorities, in terms of fund solvency. Within those limitations the employer's choice will be influenced by the degree of conservatism desired, alternate uses for cash funds, the present earnings position, the degree to which year-to-year fluctuations in pension costs may be tolerable, and possibly a number of other considerations such as the effects on cost-plus contracts.

Employees might sometimes prefer different methods with higher funding levels because their pension security would be strengthened. However, employees are rarely involved in decisions on funding, since it is the employer who pays for the full pension plan if non-contributory, or the balance of costs after employees have made their fixed contributions.

A Pension Commission study of actuarial valuation assumptions for large plans in Ontario as of October 31, 1978 reports as follows on the choices of actuarial funding methods:

Type of plan	Actuarial funding method		Total
	Accrued benefit methods	Level premium and aggregate funding methods	
Final pay	28	30	58
Career average	35	10	45
Flat benefit and other	31	16	47
	<u>94</u>	<u>56</u>	<u>150</u>
Level premium method		43	
Aggregate funding method		13	
Total		<u>56</u>	

Further analysis by the commission revealed that all except one of the 28 final pay plans using the accrued benefit method were in fact using Accrued Benefit - projected (that is with allowance for future salary increases through to retirement). The one exception was in the process of changing from the unprojected to the projected basis.

We can see from this analysis that a majority of large plans in Ontario have chosen the less conservative accrued benefit funding methods.



This Commission is concerned that the employer and employees as well as the actuary understand the alternatives in the choice of funding method. It seems wise therefore to limit the complexity of the choice, through reducing by regulation the number of methods available. The six leading actuarial funding methods in use in Ontario today offer the employer a choice of widely varying funding patterns for any type of defined benefit pension plan. Many other methods are in occasional use, but the differences appear to complicate the subject without any useful purpose.

We believe five of the six leading methods would serve all purposes for the basic plan types, and we propose that the sixth, aggregate funding, be phased out within five years. The remaining five would allow flexibility to employers as between conservative and less conservative methods. The others - all variations on the five basic methods - may be phased out.

The general rules for solvency under the Pension Benefits Act require initial unfunded liabilities to be amortized over 15 years and experience deficiencies over 5 years. The Aggregate Funding method often obscures these liabilities with the result that funding may be slower than that required under the act and in extreme cases may involve an amortization period which is twice as long. This situation appears to the Commission to be undesirable.

At present a number of plans use Aggregate Funding; many are small to medium-sized subsidiaries of U.S. companies using the same method as the parent companies. We considered retaining the method on condition that the liabilities on start-up of new plans and for benefit improvements in all plans using the method be calculated on an accrued benefit basis and liquidated over not more than 15 years. However there would still have to be a unique procedure for determining whether experience deficiencies had arisen. The method offers little advantage, if any, over the Level Premium methods which would still be available.

We recommend that the Pension Benefits Act of Ontario be amended to provide that only the following actuarial funding methods (as defined in the appendix to this chapter) be permitted to be used under the act:

- Accrued Benefit - unprojected
- Accrued Benefit - projected
- Level Premium - constant dollars
- Level Premium - constant per cent of salary, entry age normal
- Level Premium - constant per cent of salary, attained age normal

and that Aggregate Funding not be permissible after five years from the effective date of the legislation.

We are also concerned that the funding method chosen be suitable for the plan type. We further recommend therefore that the Pension



Benefits Act should designate the plan types for which each method may be used. In this connection we would expect the Pension Commission of Ontario to consult with the Canadian Institute of Actuaries.

Actuaries have given the above methods a variety of names and their interchangeable use has complicated the subject for the layman almost as much as has the diversity of methods. The Commission realizes the names it has chosen may not be appropriate and therefore recommends that the Canadian Institute of Actuaries be invited to discuss possible names which will serve their members' purposes as well as those of the public and the Pension Commission.

### Actuarial Assumptions

Once a funding method has been chosen, the actuary must make the necessary projections to ascertain the contributions to be made until the next actuarial valuation. Such projections require the making of a number of assumptions about factors which will affect the funding of the benefits under the plan. These assumptions are almost entirely within the judgment of the actuary, subject to the requirements of the Pension Benefits Act. Changes in these assumptions from time to time may create supplemental liabilities which in turn require to be funded.

The variables for which the actuary must make assumptions fall primarily under the following headings:

Decremental	Mortality, turnover, disability
Economic	Salary (merit, productivity, inflation) Interest (real, inflation) YMPE (for integrated plans)
Social	Retirement ages Family composition (for survivor benefits)

The nature of each of these assumptions is outlined in the Appendix. In the text we discuss only those which are of concern to the Commission.

In the choice of individual assumptions there are two overriding principles which the actuary must consider. The first is the relationship among all the assumptions so that their application is "internally consistent." The second is the suitability of the assumptions to a particular work-force and a particular type of pension plan.

### Turnover Rates

Turnover rates reflect the degree of mobility in the work-force covered by the plan. Since the use of turnover rates in actuarial work

on pension plans reduces the payments required, they are sometimes disregarded in order to provide an extra margin of conservatism in funding. The study by the Pension Commission of actuarial valuation assumptions of large plans in Ontario as of October 31, 1978 showed that 136 used turnover rates and 14 did not. While we recognize that this is indeed a conservative approach, the Commission is concerned that this moves away from reality and that this lack of realism appears as well in other parts of some actuarial valuations.

### Salary Scales

Since salary scales include elements for merit increases (thought to average about 2 per cent per year over a work-force), productivity increases of 1 to 2 per cent, and inflation, it seems unrealistic to be using salary scales of less than 4 to 4-1/2 per cent, but a significant number of plans are doing so. The previously mentioned study by the Pension Commission of Ontario identified 68 plans using salary scales. The rates of salary increase used were available for 64 of these plans, as follows:

Salary increase (Per cent)	Number of plans	Per cent of plans
1 up to 3	8	12
3 up to 4	18	28
4 up to 5	19	30
5 up to 6	14	22
6 up to 7	5	8

The rules of Revenue Canada may have affected the choice of salary scales. These rules are designed to protect tax revenues by preventing employers from claiming unduly large deductions for pension contributions. The department's Information Circular 72-13R6 provides that a salary scale may be used provided it is reasonably consistent with the long-term interest assumption and that normally the salary scale should not exceed the interest rate. Before February 2, 1979, the department's rule was even stricter and the interest rate had to exceed the salary scale by 1 per cent or more. It is likely that the differences shown by the statistics would be less marked were it not for these rulings.

### Interest Rates

The study by the Pension Commission of Ontario of actuarial valuation assumptions of large plans in Ontario as of October 31, 1978 provides information about current practices on interest rates, as follows:

Interest rates (Per cent)	Number of plans	Per cent of plans
4 up to 4-1/2	5	3
4-1/2 up to 5	21	14
5 up to 5-1/2	44	29
5-1/2 up to 6	30	20
6 up to 6-1/2	34	23
6-1/2 up to 7	7	5
7	9	6

Although we may stress the long-term nature and the very lengthy time periods involved in the actuary's work, many of these interest rate assumptions still seem very low in light of today's economic climate and that of the recent past. We therefore attempted to interpret the survey information in relation to our earlier information and analysis.

First, it is important to note that the use of a low interest assumption adds to the employer's estimate of costs and should thus make for conservative funding. It appears that actuaries often use low interest rate assumptions in order that the plan may generate excess funds which may be used to upgrade pension benefits from time to time.

This tendency was more noted in the plans within the study which were not using salary scales (either because benefits were not salary-related or the actuarial funding method used did not require this) than in those which used salary scales:

Interest assumption (Per cent)	Plans with salary scales		Plans without salary scales	
	Number	Per cent of total	Number	Per cent of total
4 up to 4-1/2	2	3.3	3	3.4
4-1/2 up to 5	10	16.4	11	12.3
5 up to 5-1/2	11	<u>18.0</u>	33	<u>37.1</u>
		37.7		52.8
5-1/2 up to 6	10	<u>16.4</u>	20	<u>22.5</u>
		54.1		75.3
6 up to 6-1/2	19	31.2	15	16.9
6-1/2 up to 7	3	4.9	4	4.4
7	<u>6</u>	<u>9.8</u>	<u>3</u>	<u>3.4</u>
Total	61	100.0	89	100.0

For the 61 plans using salary scales, the interest and salary scale assumptions were compared as follows:

Interest rate assumption (Per cent)	Salary scale assumption					
	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7
4		2				
4-1/2	2	2	4	1	1	
5			3	3	2	
5-1/4			2	1		
5-1/2		1	5	4		
6			3	7	7	2
6-1/2				1	1	
6-3/4					1	
7				2	3	1

Actuaries point out that what is perhaps more important than the rates themselves is that the inflation rate underlying the interest rate be the same as that underlying the salary scale. On that basis, if we assume a real rate of return ranging between 2 and 3 per cent, say 2-1/2 per cent, we can derive the inflation component and then, by assuming this same inflation component has been built into the salary scale we can see what allowance has been made for merit and productivity. We did this and our findings were as follows:

The inflation component was 1-1/2 per cent in 2 plans  
2 per cent in 10 plans  
2-1/2 per cent in 8 plans  
2-3/4 per cent in 3 plans  
3 per cent in 10 plans  
3-1/2 per cent in 19 plans  
4 per cent in 2 plans  
4-1/4 per cent in 1 plan  
4-1/2 per cent in 6 plans

The allowance for merit and productivity was  
0 or minus quantity in 13 plans  
Up to 1 per cent in 13 plans  
1 per cent in 11 plans  
1-1/8 per cent up to 2 per cent  
(mostly 1-1/2 per cent) in 16 plans  
2 per cent in 4 plans  
2-1/2 per cent in 4 plans  
Over 2-1/2 per cent in 1 plan

The inflation component, which applies to both the interest assumption and the salary scale, seems somewhat low in about half the plans, but the allowance in the salary scale for merit and productivity seems



decidedly understated in more than half the plans. The result of the latter in particular is to definitely understate the normal contributions for pensions. The effect of this however would be somewhat offset by the fact that the interest rate assumptions are still on the whole on the low side, or conservative. Actuaries point out that the interest rate has a more important effect on pension plan costs than salary scale because interest operates both before and after retirement. In very rough terms, they say, a reduction of interest rates by 2 per cent in a final pay plan may be offset by a reduction of 3 per cent in the salary scale.

However the Commission believes that the elements making up both the interest rate and the salary scale should be shown separately by the actuary to ensure that account is taken of each element and that inflation elements are common to both interest rates and salary scale, or that an explanation be given if this is not the case.

#### Canada Pension Plan Ceiling (YMPE)

Where employment pensions are integrated with the CPP an assumption as to the year's Maximum Pensionable Earnings (YMPE) for the CPP is required. The YMPE is set by statute to increase 12-1/2 per cent each year until the YMPE and the Average Industrial Wage are the same. One would expect actuaries to use an assumption reflecting the statutory level, but this is not always the case. For example, in reporting to the Commission on the practices of 127 plans in the Ontario public sector, Dr. Laurence Kelly says: "...although the rate of YMPE increase is established by legislation...one finds, at one end of the scale, assumptions of 12-1/2 per cent for years to 1980 to 1983 and 4-5 per cent thereafter, and at the other, assumptions of 0 to 5 per cent for all years from 1977." The Commission does not see how such latter assumptions can represent good actuarial practice.

Pension plan solvency depends on the choices made by the individual actuary. Our analysis of the determination of actuarial assumptions confirms that there is much discretion and judgment and counterbalancing as estimates are piled on top of one another. Some assumptions such as terminations are on occasion simply ignored. Others such as interest and salary scale range widely, with some choices being obviously unrealistic. Even mortality rates can be chosen from as many as a dozen tables, some dating back 30 or 40 years, whereas one would have thought there could be say 3 or 4 for general use where the plan's own size and history do not warrant its own rates.

We understand the need for professional judgment and flexibility; but there appear to be few real boundaries or discipline. The effect of overstating one assumption while understating or omitting another tends to obscure the real effects of individual assumptions and makes it almost impossible for anyone but the actuary to sense whether the overall valuation is conservative or otherwise. It also gives credence to the

popular idea that the actuary can juggle assumptions to achieve any results the actuary or employer wishes. It should be in the interest of the actuarial profession to minimize that impression.

The Commission believes the parameters need to be narrowed, which is not to say we would look for total uniformity and consistency. What is needed are some firm written guidelines to be followed by the actuarial profession in the determination of actuarial assumptions. These guidelines might encompass the following points:

1. Mortality Tables

The number used should be narrowed and specified from time to time. Some direction might be given as to the circumstances under which certain tables would normally be used. Perhaps it should be recommended or required that plans of a certain size, say 5,000 members or more, develop their own tables based on their own experience for a specified period of years.

2. Salary Scales

The separate components should be identified and shown in the actuarial valuation, i.e., inflation, productivity, and merit.

3. Interest

The separate components should be identified and shown in the actuarial valuation, i.e., inflation, real return, risk factor. The inflation component should be the same as in the salary scale.

Perhaps a suggested range for real rates of return should be published from time to time. Some direction might be offered concerning Pension Commission and Revenue Canada expectations.

There might be a requirement to report in the actuarial valuation the plan's own real rate of return experienced in certain periods in relation to the assumption being used for the future.

4. Incremental Studies

These should be encouraged or required at certain intervals and reported upon in the actuarial valuation and related to ongoing assumptions.

5. YMPV Values

These should be required to be in accordance with the relevant Canada Pension Plan provisions.

## 6. Factors to be Included

There should be no omissions, such as turnover, in the name of conservatism. Assumptions should be made for all factors.

The Commission is of the opinion that there should be some restriction on the latitude allowed to the actuary in selecting the plan assumptions. We therefore recommend that the Pension Commission of Ontario establish guidelines without delay directed to:

- a) the appropriateness of actuarial assumptions and their internal consistency;
- b) the incorporation of actual plan experience, where suitable, into the construction of tables for mortality and turnover rates;
- c) the identification of the inflation rate and other elements making up the salary scale and interest rate assumptions and requiring internal consistency.

The Pension Benefits Act or its regulations should be amended to require reporting in compliance with the guidelines. The guidelines of the Commission would also take precedence over the standard enunciated in the present Section 4(b)(i) of the regulation which calls for "assumptions which are appropriate for the plan and methods consistent with the sound principles established by precedents or common usage within the actuarial profession."

### Actuarial Valuations

The end product of the actuary's work is called an actuarial valuation. This is the formal report to the employer setting out and certifying the results of the review and valuation of the plan, including: the actuarial funding method and assumptions used; the "annual service cost" - that is, the cost of benefits for service in the next year; the rule for computing "annual service cost" (a specified percentage of payroll, etc.) for the remaining years until the next valuation; and the amount of supplemental liabilities and of special payments required to amortize those liabilities over a specified number of years.

### Frequency

The Pension Benefits Act requires the first actuarial valuation to be filed with the Pension Commission of Ontario within 60 days of the establishment of the plan and further reports at least every three years. These valuation reports must also be filed with and meet the requirements of Revenue Canada. The report is to be filed by the employer within a year of the valuation date. In actual practice,



most employers only have a valuation done every three years; many are prepared and filed close to the deadline, so that at times the Pension Commission has valuation data which are nearly four years old. As a result, information on experience deficiencies and unfunded actuarial liabilities of a plan - and hence its health - is often very out of date.

The Commission considered requiring valuations more often, such as every two years. However, these are expensive, particularly for small and medium-sized plans, and the Pension Commission does have the power to call for actuarial valuations more often than triennially if the Commission feels it necessary to be sure of the solvency of a plan. We therefore decided not to recommend any change except in the public sector, where we recommend that plans with assets of more than \$150 million be required to have an actuarial valuation every year. We do recommend, that instead of the present requirement that actuarial valuations be filed with the Pension Commission of Ontario within a year of valuation date, filing be required within six months of the valuation date except for the small group of public sector plans which have assets of more than \$150 million, where nine months will be allowed as a practical necessity. We further recommend that there should be suitable financial penalties for late filing.

#### Basis of Reporting

Ongoing actuarial valuations employ the funding method under which the plan has been operating. If they show that fund assets actually on hand are different than they are supposed to be, there is said to be an experience gain or an experience deficiency. These experience gains and deficiencies are discussed in the next section, "Unfunded Actuarial Liabilities."

#### Standards for Reporting

The Pension Benefits Act requires that the actuary's valuation report be prepared "using assumptions which are appropriate for the plan and methods consistent with the sound principles established by precedents or common usage within the actuarial profession."(17)

The actuary in turn is bound by the Guides to Professional Conduct of the Canadian Institute of Actuaries, from which the following extracts are taken:

The member will exercise his best judgment to ensure that any calculations or recommendations made by him or under his direction are based on sufficient and reliable data, that any assumptions made are adequate and appropriate and that the methods employed are consistent with the sound principles established by precedents or common usage within the profession.



A requirement common to all actuarial valuations is that assumptions and methods be selected and applied with integrity, good judgment, and perspective in relation to the particular problem.

In addition to considerations of fund solvency or the development of benefits security for participants, the actuary will have to take into account the financial needs and planning of the plan sponsor, as well as factors which may relate to requirements or suggestions made by accountants, governmental agencies and bargaining or other agreements.

There is little beyond this to guide the individual actuary other than his or her own experience and that of the actuary's firm or associates. The American Academy of Actuaries has gone further in that it has published a preliminary list of acceptable actuarial funding methods and some recommendations concerning their use.(18) The Canadian Institute of Actuaries adopted "Recommendations for Valuation of Pension Plans" in June 1980, but these do not appear to address the defining of acceptable actuarial funding methods for various pension plan types or appropriate actuarial assumptions. The individual actuary is therefore left with great flexibility so that the wide variation in cost estimates clearly applies not just to cost estimates prepared privately for employers but also to actuarial valuations on file with the Pension Commission. Accordingly, the Commission does not believe that the CIA recommendations are sufficient in themselves.

The Pension Commission at the present time has the power under the regulation to reject a report which it is not satisfied has been prepared in accordance with sound actuarial principles; but its authority for professional standards is the Institute, which in turn has no settled policy. Since the actuarial report is designed to disclose the health of the funding and hence the solvency of the plan, the Commission is of the opinion that the present standard for reporting is not satisfactory. It therefore recommends that the Pension Benefits Act be amended to require reporting in compliance with such guidelines and requirements as may be set by the Pension Commission of Ontario from time to time. We have no doubt that the Pension Commission would wish to consult with the Canadian Institute of Actuaries about the content of the guidelines; but it is essential that they be established without delay.

#### Contents of the Report

The actuarial valuation or report will usually include:

- Summary of plan provisions
- Summary of plan membership
- Statement of actuarial funding method used
- Actuarial assumptions used
- Valuation balance sheet

- Analysis of new initial unfunded liabilities
- Analysis of valuation results, including statement of experience deficiency and perhaps a test valuation
- Recommended special payments against initial unfunded liabilities and experience deficiencies
- Recommended annual service cost for the next succeeding year
- Rule for computing annual service cost in subsequent years up to the next actuarial valuation

### Valuation Balance Sheet

The centre-piece of the report is the valuation balance sheet. It will look very different depending on whether an accrued benefit funding method (either projected or unprojected) or a level premium or Aggregate Funding method is used. In the accrued benefit method, the assets are compared with the value or liability for pension benefits for prior service only, i.e., up to the date of the balance sheet. In the level premium or Aggregate Funding methods, the fund assets plus the present value of future contributions of employer (and employee if applicable) are compared with the present value of pension benefits for past and future service.

The balance sheet for a level premium or Aggregate Funding valuation would take the following form:

Simplified Valuation Balance Sheet  
Level Premium Funding Method

Pension fund cash and investments	X	Pension benefits payable to pensioners	X
Present value of future normal contributions from employer	X	Vested deferred pensions	X
Unfunded liability		Prospective pension benefits to active employees	X
Initial unfunded liability	X		
Experience deficiency	<u>X</u>		
Total	<u><u>X</u></u>	Total	<u><u>X</u></u>

Under an accrued benefit method the second item on the assets side would be missing and the last item on the liabilities side (prospective benefits to active employees) would be for a much smaller amount as it would cover only benefits for service up to the balance sheet date. If this were a contributory plan, the present value of future contributions from the employees would appear as an asset directly under the same item for the employer.

Under the Aggregate Funding method there is no unfunded actuarial liability unless, as mentioned before, some initial unfunded liability was set up on an arbitrary basis.

The following sample Summary of Actuarial Valuation might be helpful. Our hope is that the Canadian Institute of Actuaries in consultation with the Institute of Chartered Accountants of Ontario or the Canadian Institute of Chartered Accountants, both of whom are showing increasing interest and activity in the pensions field, may develop a statement which is more meaningful and informative for employees about the funded status of a plan than the present valuation balance sheet, and which could accompany each actuarial valuation. This could serve the employer in responding to our recommendations for certain reporting to the employees.

Employer XYZ  
Sample Summary of Actuarial Valuation

---

Calculated actuarial liability

Retirees (2,200)		\$
Deferred vested annuitants (900)		\$
Active employees (10,700)		
Total liability for all past and future service	\$	
Less: estimated future contributions	\$ _____	\$ _____
	Total	

Other liabilities

Employee contributions in excess of their calculated actuarial liability	\$	
Others (specify)	\$ _____	\$ _____
	Total	

Assets available to meet liabilities

Cash	\$	
Marketable securities at book value (market value \$ _____)	\$ _____	\$ _____

<u>Unfunded actuarial liability</u>		\$ <u>  X  </u>
-------------------------------------	--	-----------------

Attributable to:

7 annual instalments owing re: planning improvement of (date)	\$	
3 annual instalments owing against experience deficiency of (date)	\$ _____	\$ <u>  X  </u>

---

## Valuation of Assets

The term "balance sheet" for an actuarial valuation may imply a well-defined snapshot of the financial status of a plan at the date stated. The liability side of the balance sheet, however, is less a statement of present reality than a discounting of the future according to the actuarial funding method selected. Whereas both the short and long-term debt of a corporation on its financial balance sheet are precise figures at any time, the liability of a pension fund is a current opinion of how the future may evolve.

The ever-present need to predict the future is central to pension fund valuation. It is thus logical that the asset side of a pension fund balance sheet should also be approached differently than would be the case for a financial balance sheet. Although a pension fund constitutes a pool of financial assets, it is not a mutual fund whose assets are valued daily or monthly at open market prices. Shares of the fund are continually being bought and sold based on the underlying value of the fund's investments.

Pension plans having actuarial valuations use different approaches to valuing fund assets just as they use different means to value fund liabilities. It may seem misleading to value a fund at anything other than market prices, but there are strong reasons for deviating from market quotations in many cases. This was brought out as we examined methods in current use.

## Market Values

If the pension plan is being wound up or if the purpose of the actuarial valuation is to determine basic solvency at a certain point in time, then of course market values or realizable values should be used for all classes of assets. However, most pension plans are valued on the premise that they are a "going concern" which will continue until the last plan member dies. Since for example, securities will not have to be sold for a long time and the pension fund may be valued triennially or annually, a slavish reliance on market prices on a single date in such a lengthy time span can distort the orderly funding of a plan.

Some admittedly extreme examples may serve to explain why actuaries ordinarily are unwilling to place total reliance on market values.

Suppose two corporations operate final earnings plans and both invest their pension funds only in high-grade bonds. Each plan was fully funded as of its previous triennial valuation and the employers are making only current service contributions. Company A's triennial valuation is made on May 31, 1979. Using market prices for the bonds, the actuary reports the plan is still fully funded. Company B's valuation is conducted on February 29, 1980. The actuary reports the plan is



severely underfunded because the prices of bonds held are far below their book value or purchase price. In fact, the portfolio is worth 17 per cent less than it was on May 31, 1979 because the average bond held has dropped 17 per cent in price, and part of the investment income was used for benefits and expenses. The unfortunate employer will have to boost contributions to pay off the experience deficiency over the ensuing five years. Had this plan also been valued on May 31, 1979, it would have received a clean bill of health. Thus even if the two companies' investment portfolios and liabilities were identical, the second company would have shown an experience deficiency because the valuation date produced unfavourable results.

Assuming that all bonds are held to maturity (or are traded for other bonds that will eventually mature), then a fund should not be stated to have "lost" money because it bought a Government of Canada bond at par and the same bond dropped 20 per cent in the next two years to reflect rising interest rates. What the fund has lost by buying bonds before bond prices fell is the opportunity to have invested its funds at greater average returns. Thus, the buyer of a government bond at the time of issue with an 8 per cent coupon maturing in 25 years will see his bond plummet in value to 57 per cent of face value if interest rates on long-term Canada bonds rise to 14 per cent a few years later. Had the fund's investment manager not bought bonds but just invested in short-term paper waiting for a rise in interest rates, much better investment returns could have been produced over a longer time period by waiting until the bonds fell to 57 and then buying them. But this maneuver, which is just what skilled bond managers are supposed to do, affects the investment return, not the question whether a buyer of a bond on issue who holds to maturity can be deemed to have an out-of-pocket loss because market values plunge in between.

Another illustration of the vagaries of market valuation will make the point even clearer. Assume three employers having fully-funded plans with identical portfolios and identical liabilities. Each portfolio is invested 50 per cent in Canadian common stocks and 50 per cent in "cash" (short-term deposits). One employer has a valuation on September 30, 1979, the second on October 31, 1979, and the third on February 28, 1980. The first would get a clean bill of health, the second a significant experience deficiency, and the third would be deemed overfunded and would not be permitted by Revenue Canada to make further current service contributions at the same rate, on the ground that the plan did not require further contributions. To reduce this dependence on change, whim, fate, or luck, actuaries usually use some valuation criterion other than market value alone.

#### Cost

One alternative to market value is to value the investments at their purchase price or cost. When economic conditions are stable, stock prices tend to rise and the method is then conservative; also bond

prices are near par and the method is reasonably accurate. However when a security has been held for a long time or when economic conditions are disturbed, market price may depart far from cost price so that this method may be as inappropriate or misleading as straight market values.

#### Book Value for Stocks - Smoothing Stock Returns

Book value is a term sometimes applied to stocks to mean their original cost. Here it means cost price adjusted to some extent on account of market price appreciation or depreciation, separately for each stock held. For example, stocks in the pension fund may be valued at a moving average price, i.e., the average price of the last three or five years before the actuarial valuation date.

Assuming that the formula chosen under this method is applied consistently from one valuation to another, this will have the effect of smoothing the effect of appreciation and depreciation in market prices over the years. Thus, in a year like 1979, the actuary would not take into 1979 returns anything like the actual 44 per cent (including dividends) experienced on a typical Canadian stock portfolio, knowing that such results are far above long-term rates of return on stocks. By the same token, in a year in which the stock market dropped 12 per cent, the actuary might reduce the fund's 12 per cent loss by say 7 per cent due to the trend in the particular portfolio's stock prices.

One advantage of smoothing is that it makes equity investments more attractive to a pension fund because of the reduction in volatility. Over a very long term, equities in general must generate better returns than debt in general if a private enterprise economy is to survive. But this long-term reality is subject to sharp and extremely painful shorter-term distortions as occurred in 1974, when stock prices dropped by more than a third.

Clearly this technique can mask recent market trends. At a time of a weak market, the assets of a plan which had to be wound up could prove to be much less adequate than revealed by the latest valuation. Smoothing permits order and predictability, however, on a going-concern basis.

#### Book Value for Bonds - Cost or Amortized Value

The book value of a bond may be its purchase price (or cost) or its amortized value, which means that any premium or discount (above or below par value) when it was bought is spread over the term to maturity. For example, a \$100 bond purchased three years ago which then had a ten-year term and was priced at \$90, would be shown on the books at \$93.

To elaborate, if you buy a Government of Canada 4-1/2 per cent bond maturing in September 1983 at a time when interest rates on mid-term

government bonds are in the 13-1/2 per cent range, the bond will sell at a discount so that its yield is comparable with other bonds. Assume that you buy it at 80 in January of 1980. The government will pay you full face value in 45 months. You may decide to write off or "amortize" this discount on a straight-line basis between the time of purchase and the time of maturity so that the gain is spread evenly over that time, rather than showing a modest investment income for 44 months and a 25 per cent return in the final month.

Where premiums are involved there is a further choice of method: the premium may be spread over the term to maturity or the bond may be written down to par immediately. Thus if you bought a Canada 9-1/4 per cent of 1997 at 103 in 1977, you could write the \$3 premium off in even instalments over 20 years or in a lump sum in the first year.

Under this method, market fluctuations in bond prices are ignored, with the result that the book value of a bond at an intermediate time between purchase and maturity may exceed its market value. Thus, in the example of the Canada 9-1/4 per cent 1997's bought at 103 in 1977, the climb in interest rates by early 1980 would have pushed their market value down to 72; but they would still be carried at a book value of 100 or more, depending on which of the two approaches to amortization was chosen.

This whole approach relies on the fact that the bond will eventually mature at par, and that seems not unreasonable as long as the cash flow projections for the fund indicate that it can be held until maturity. Even if a fund is in that position, whether a bond should be held until maturity is quite another question, depending on other investment opportunities along the way.

#### Capitalized Values for Fixed Income Securities

Under this method, the interest income on bonds, mortgages, or other fixed interest bearing assets, together with the amount due at maturity, is discounted at the valuation rate of interest used for the liability side of the balance sheet, i.e., the actuarially assumed interest rate. The effect is to capitalize future interest payments which are in excess of the actuarially assumed rate and add that value to the face value of the bond, mortgage, etc., at the valuation date.

To illustrate capitalized values, assume that a pension fund holds a \$1,000,000 bond due to mature 3 years after the actuarial valuation date, with interest at 9 per cent payable one year after the valuation date and each year thereafter until maturity. Also assume an interest rate assumption of 6 per cent per year for determining the plan's actuarial liabilities. The \$1,000,000 asset would be valued at \$1,080,192 as follows:



The present value (i.e., as of the valuation date) of the first year's interest payment of \$90,000 could be calculated as  $\$90,000/1.06$ , or \$84,906

In other words, \$84,906 is the amount needed to be invested as of the actuarial valuation date at 6 per cent per annum to produce cash of \$90,000 (the annual interest coupon on this bond) one year later.

The present value of the other payments on this bond would be calculated as -

Year 2 interest $\$90,000/1.06^2$ or 1.1236 =	\$80,100
Year 3 interest $\$90,000/1.06^3$ or 1.1910 =	\$75,567
Year 3 principal $\$1,000,000/1.06^3$ or 1.1910 =	<u>\$839,619</u>
Total	\$1,080,192

Premium or write-up, representing the present value of excess interest over the actuarially assumed interest rate	\$80,192
	or
	8.02%

If the same bond were due to mature in 15 years instead of 3, its value under the same circumstances and valuation method would be \$1,291,366 or 29.14 per cent above face value of \$1,000,000.

The rationale behind this method is that the present value of the liabilities of the plan has been calculated on the assumption that a certain rate of interest (6 per cent) will be earned on plan assets. We know for a fact that some of our assets (\$1,000,000) are going to earn more (9 per cent vs. 6 per cent) so that the present value of the liabilities should really be less. But it complicates the process for calculating the liabilities when we work with varying interest rates; it is much easier to make the adjustment through the asset values. Therefore, the amount of the adjustment is made as a write-up of assets rather than a write-down of liabilities. The overall effect on the amount of the unfunded actuarial liability, if any, is exactly the same, although making the adjustment through asset values does have the effect of slightly understating the ratio of any unfunded actuarial liability to the total actuarial liabilities of the plan.



This technique can produce apparent anomalies. Suppose a fund assumes a rate of return of 6 per cent and the fund's portfolio is invested entirely in long-term bonds with an average coupon of 9 per cent and a term to maturity averaging 15 years. In current markets those bonds would sell at large discounts to bring their yields to maturity into the 13 to 14 per cent range. Thus if the fund had to liquidate its portfolio at current market prices it would sustain heavy losses. But under this valuation method the value of the bonds to the fund is actually increased rather than decreased.

The Commission therefore recommends that this method of writing up assets only be used where the following conditions apply:

1. The bonds, etc. involved must be of very high quality to ensure collectibility.
2. The fund should have the ability to hold the investments to maturity - whether or not it will do so. At least the cash flow projections for say 10 years ahead should show there will not be a drain through benefit payments sufficient to force liquidation of these investments before maturity.
3. Just as investments bearing interest at a rate higher than the actuarially assumed rate will be written up in value, those carrying a lower interest rate must be written down.

Where this method is used, the long-term interest assumption perhaps warrants closer-than-usual scrutiny as to its degree of conservatism. The point is that the current high interest rates have already been taken into account in the actuarial valuations, and whatever long-term interest rate is assumed depends entirely on future events or expectations. It does not depend on the average of known high rates in the recent past, and the unknown, possibly much lower rates, of the future.

Finally, since the use of this method is tantamount to putting known interest earnings for some of the years ahead in place of the assumed long-term rate, there is another special consideration where a salary scale is used in the actuarial valuation, as with a final pay plan. It becomes essential that the salary scale be varied for those same years in order to be compatible or "internally consistent" with the interest rates used. Otherwise the actuarial liability will surely be understated.

#### Other Approaches

Some funds value bonds, mortgages, etc., at market value subject to a smoothing formula along the general lines of the ones for stocks. As with stocks, a wide variety of formulas is available, based on the judgment of individual actuaries.

Some kinds of assets require special valuation techniques. Suppose a large pension fund owns an office building in Toronto. If the fund has owned it for a long time, its book value will be below cost because the building will have been depreciated. But the market value of the land and building may be well above original cost, let alone book value, and the fund may wish to carry such real estate holdings at the higher and more realistic value.

Under these circumstances, funds may use differing methods for valuing real estate holdings. Some write up book values in line with an index such as the Consumer Price Index. Some arrange for appraisals, which are both expensive and to some extent subjective, and adjust values accordingly. Some smooth their results by writing up the difference between book and appraised values on a basis similar to the amortizing of bond discounts.

Funds may own non-marketable investments, like "letter stock" or other investments, for which no market quotations are available. Actuaries have considerable freedom in their choice of valuation techniques in these cases, although for most funds the percentage of assets held in non-marketable investments is so small that any distortions in the valuation will not have a material effect on the balance sheet.

#### Pension Commission of Ontario Guidelines

In 1975 the Pension Commission of Ontario published a guide for valuation of pension fund assets. Essentially this sets out the maximum asset value that the Pension Commission is prepared to accept. The actuary is allowed to use any method provided the asset value does not exceed the highest value obtainable under four methods outlined by the Commission. In brief the Commission's four methods of valuing the assets are:

1. Market value, provided the actuarial liabilities have been valued conservatively;
2. The aggregate of:
  - equity stocks and shares valued as described above under "Book Value for Stocks - Smoothing Stock Returns," with the proviso that "the aggregate stock portfolio must not be valued above market in any circumstances,"
  - bonds at amortized value as described above under "Book Value for Bonds - Cost or Amortized Value," even if this exceeds market,
  - mortgages at the amount of the balance of the mortgage outstanding, or at a lower value where the market value of

the property forming the security for the mortgage has depreciated,

- real estate at cost less depreciation or at appraised value,
- pooled funds at cost or market depending on their nature;

3. The aggregate of:

- fixed interest securities valued at a rate of interest not less than the assumed actuarial valuation rate (as described above under "Capital Values for Fixed Income Securities"), except for assets where the security is not first class, e.g., junior bonds or mortgages, the value for which should not exceed market,
- equity stocks and shares valued as in method (2) above;

4. The entire fund at cost price, adjusted by a three-year moving average of the excess or deficiency of the market value of all assets over or under cost price.

In all cases the market value of the assets must be shown in the actuarial valuation report.

No statistics are available from the Pension Commission as to asset valuation methods actually in use. The one source of information we have in this regard is the FEI Canada survey of March 1980, which showed the following for 194 employers across Canada:

Method	Number	Per cent of total
Book value	52	26.8
Market value	41	21.1
Equities at market and bonds at book or amortized value	15	7.7
Equities at market and fixed interest securities at rate of interest assumed in valuing liabilities	7	3.6
A method which adjusts differences between book and market over time	36	18.6
Others	43	22.2
Total	194	100.0

In addition we know that three of the six major pension plans in the Ontario public sector value their fixed interest securities at the actuarially assumed rate of interest.



In its guidelines, the Pension Commission states:

The Pension Benefits Act is primarily designed to ensure that employees receive the promised benefits. From this viewpoint the Commission would not object to an asset valuation on the ground that it is too low, although this might be of concern to the income tax authorities.

It follows that the Commission's prime concern is to see that pension fund assets are not overvalued, rather than to see that they are properly valued. This may explain the wide latitude and flexibility given the actuarial profession in the valuation of assets. Yet appropriate and consistent valuation of assets is just as important as the determination of actuarial liabilities to obtain a true picture of the performance and position of the fund and contributions needed in future.

Whatever method of asset valuation is selected for a particular fund, it will tend to remain in force thereafter and at least provide consistency. This is because the Pension Commission of Ontario will not permit pension funds to change their approach without valid cause. Thus funds cannot switch from book value to market value to take advantage of a decline in interest rates and a rise in bond prices, then switch back to book if bond prices plummet after a rise in interest rates.

#### Valuation of Liabilities

#### Experience Gains and Deficiencies

Experience gains and deficiencies arise essentially because the actuarial assumptions have not been borne out by actual experience between the dates of succeeding actuarial valuations.

Where an experience gain arises, Section 2(12) of the regulation under the Pension Benefits Act provides that it may be applied to reduce any future payments for current service (normal) contributions plus annual instalment payments against supplemental liabilities, or to reduce the outstanding balance of any experience deficiency or other supplemental liability. Often in actual practice the gains are carried forward as a contingency reserve or as an advance provision for an improvement in plan benefits.

When experience gains produce an actual surplus - that is, in a fully funded plan - the employer may seek approval of Revenue Canada and the Pension Commission of Ontario for a refund of surplus. Depending on its assessment of the plan valuation, it is the practice of the Pension Commission to allow a refund of surplus except for the greater of (a) two years' current service contributions and (b) 15 per cent of the total actuarial liabilities of the plan.



Section 2(3)(c) of the regulation requires experience deficiencies to be liquidated by an immediate lump sum payment or by equal annual payments over not more than five years from the valuation date as of which they were discovered. Thus, in a plan using a 6 per cent interest rate assumption, a \$100,000 experience deficiency to be paid off over 5 years would call for 5 annual payments of \$22,400 and a cumulative charge against the employer's earnings statement of \$112,000.

An alternative to this treatment, called a Test Valuation, is available under Section 4a of the regulation. When rates of inflation began to climb after 1970 a number of pension plans experienced difficulties. Rapidly rising salaries gave rise to experience deficiencies which were required to be liquidated over a maximum period of five years. The salary increases affected pensions based on final average earnings far more than other pensions, even if the other plans were regularly upgraded. If the actuarial assumptions were made more conservative in order to provide more fully for the increasing costs and avoid further deficiencies, the effect was magnified. The 5-year write-off rule discouraged any move towards more conservative funding and thus operated contrary to the purpose of the legislation.

In order to relieve these problems the funding regulations were changed with the introduction of Section 4a in 1976. Liabilities arising because of a change in the actuarial assumptions could be considered as initial unfunded liabilities (see Funding of Other Supplemental Liabilities below) rather than experience deficiencies; as a result they could be paid off over fifteen years instead of five. In addition, some or all of the liabilities or experience deficiencies arising because of rapidly increasing salaries could be deemed initial unfunded liabilities depending on the outcome of a test valuation of the pension plan and paid off over 15 years instead of five.

The test valuation does not replace the regular actuarial valuation of the pension plan; it is extra and subsidiary to it. Its main features are:

1. The plan is valued as at both the current valuation date and the previous valuation date, on the basis of the plan provisions and actuarial assumptions as at the previous valuation date, e.g., 3 years earlier. The purpose is to isolate the effect of plan improvements and changes in actuarial assumptions so that this cost may be treated as an initial unfunded liability rather than an experience deficiency. There is an overriding rule concerning the interest assumption: it must not exceed 6 per cent. This is intended as a measure of conservatism.
2. The test valuation is based on an Accrued Benefit funding method (usually unprojected), but with no allowance for terminations. This introduces another measure of conservatism.

3. The test valuation neither requires nor prohibits a projection of salaries, but for final pay plans the minimum earnings figure to be used is current earnings at the valuation date. Earnings averaged over a period of years before the valuation date cannot be used. Thus a further element of conservatism is provided.
4. Assets must be valued on a basis consistent with the regular valuation and acceptable to the Commission.

The ratio of fund assets to liabilities calculated as above as at the earlier (previous) valuation date is said to be the Funded Ratio under the test valuation. Suppose it is .850 (85 per cent). Then the Unfunded Ratio is said to be the difference between that and 1.000 (100 per cent) or .150, and a Target Ratio is set for the next (current) valuation date. This target ratio is the funded ratio at the earlier valuation date (.850), increased by 1/15th of the unfunded ratio at that date (.150) for each year until the next (current) valuation date, i.e.,  $.850 + (1/15\text{th of } .150 \times 3 \text{ years, or } .030) = .880$  (88 per cent). If the ratio of fund assets to liabilities calculated under the test valuation (funded ratio) as of the current valuation date is .880, even though the resultant unfunded actuarial liability of .120 or 12 per cent is not associated with plan improvements or the like, it is all deemed to be initial unfunded liability which can be liquidated over 15 years. There is deemed to be no experience deficiency. If the funded ratio is below the target ratio (.880), the difference is deemed to be an experience deficiency which must be liquidated over 5 years. The remainder of any "experience deficiency" revealed by the regular valuation is deemed to be an initial unfunded liability which may be liquidated over 15 years.

Payments against experience deficiencies may be accelerated at any time if the employer wishes, and any remaining balance may be paid off in a lump sum. However, the Canadian Manufacturers' Association and some individual employers have expressed the view that the present arrangements are too stringent, with the result that Canada's competitiveness with the United States is affected. Accordingly, they have advocated that a longer term be allowed for liquidation of experience deficiencies, e.g., 15 years, perhaps even 20. This possibility is discussed with similar proposals for amortizing initial unfunded liabilities at the end of the discussion on Funding Other Supplemental Liabilities.

#### FUNDING OF OTHER SUPPLEMENTAL LIABILITIES

Ontario Regulation 654 to the Pension Benefits Act divides the supplemental liability into two parts: Experience Deficiencies and Initial Unfunded Liability. An initial unfunded liability, defined in Section 1.(f), may arise from:

1. Granting of pension credits for service rendered prior to the establishment of the plan.
2. Using a normal contribution rate based on an age assumption (e.g., entry age normal) that does not reflect the ages of older employees at the time the plan is established.
3. Liberalization or improvement of plan benefits not related to current service.
4. The changing of actuarial assumptions.

Also through the operation of the test valuation, discussed above, some part of an experience deficiency may be designated as an initial unfunded liability.

The amounts of initial unfunded liability involved in a plan can be very large, since liberalization of plan benefits in some cases occurs at regular intervals; and the granting of pension credits for service rendered prior to the establishment of a plan is a common practice. The amount of liability may also vary widely depending on the actuarial funding method used. To illustrate, using examples for Actuarial Funding Methods in the Appendix, if we assume an employee started at age 33 but the pension plan started at his or her age 40 with full immediate credit for past service, the initial unfunded liability under each of the various actuarial funding methods would have been:

<u>Liability for past service credits</u>	<u>Amount of initial unfunded liability</u> (Dollars)
<u>Flat Benefit Plan</u>	
Accrued benefit - unprojected	5,400
Level premium - constant dollars	11,928
<u>Career average plan</u>	
Accrued benefit - unprojected	2,578
Level premium - constant per cent of salary, entry age normal	10,928
Level premium - constant per cent of salary, attained age normal	7,798
<u>Final pay plan</u>	
Accrued benefit - projected	4,456
Level premium - constant per cent of salary, entry age normal	8,785
Level premium - constant per cent of salary, attained age normal	6,838



Sometimes the amount of an initial unfunded liability is recalculated at each actuarial valuation date, but it is more usual to treat it as a fixed debt of the fund, called a "frozen initial liability." In this way, all future gains or losses through change are liquidated as part of the normal contribution (or the experience deficiency) when it is determined in succeeding actuarial valuations.

An initial unfunded liability is required to be liquidated by an immediate lump sum payment or by equal annual instalments over a maximum of 15 years from the date on which it arises (Section 2.3(b)ii) of the regulation). Thus, in a plan using a 6 per cent interest rate assumption, a \$100,000 supplemental liability to be paid off over 15 years would call for 15 annual payments of \$9,713 and a cumulative charge against the employer's earnings statement of \$145,695.

An employer is free at any time to pay off the balance of an experience deficiency or an initial unfunded liability. Advance partial payments may be made to accelerate this funding, provided that any reduction or omission of special payments as a result of an advance payment must occur within the next three-year period. In other words, any "acceleration" must have the effect of reducing the period originally allowed for payment of the debt. These arrangements, while permitting some irregularity of payments, also allow for the enhancement of security for employees' benefits.

There is an exception to the 15-year rule which allows plans for government employees to pay only interest on an initial unfunded liability existing on January 1, 1965. Such liabilities are treated as a fixed debt of the fund, and over time they are likely to become relatively small compared to the fund.

Choice of the maximum period of 15 years for paying off an initial unfunded liability is of course somewhat arbitrary. It is thought to relate to some extent to the idea that when an employer gives credits for past service on start-up of a plan or a retroactive improvement in plan benefits, this is not so much a reward for past service as an incentive for future service. This suggests that the cost be spread over the period from the employee's attained age to his or her expected retirement age. That is, to have the funding extend beyond the employee's retirement age (or, for a group, beyond the average age to retirement) would be dangerous if the number of plan members were to decrease. It appears that the 15-year period was allowed so that the liability would be paid off by the time the average employee retired, even if the age distribution of the employees was old.

In the United States longer periods are allowed. This has been brought to the Commission's attention by the Canadian Manufacturers' Association and several individual employers who advocate that we allow a longer period, i.e., 20 years or 30 years for amortizing initial unfunded liabilities and 15 or 20 years for experience deficiencies.



Their principal arguments are that Canada's competitiveness with the United States is being harmed, and that overly strict funding requirements act against one of the purposes of the legislation, namely to encourage the extension and improvement of pension plans. Others supporting the argument for extending amortization periods contend that the average period until the employee retires exceeds 15 years in most cases.

Tables 2 and 3 were prepared to show how the annual payments to amortize a liability of \$100,000 for both an experience deficiency and an initial unfunded liability vary with the number of years allowed for this purpose.

Table 2

Amortization of Experience Deficiency Liability of \$100,000 by Payments Annually in Advance

	Periods of years			
	5	10	15	20
	(Dollars)			
<u>Interest rate 5 per cent</u>				
Annual payments	21,998	12,334	9,175	7,642
Per cent change from 5 year term		(44%)	(58%)	(65%)
Total payments	109,990	123,340	137,625	152,840
Per cent change from 5 year term		12%	25%	39%
<u>Interest rate 6 per cent</u>				
Annual payments	22,396	12,818	9,713	8,225
Per cent change from 5 year term		(43%)	(57%)	(63%)
Total payments	111,980	128,180	145,695	164,500
Per cent change from 5 year term		14%	30%	47%
<u>Interest rate 7 per cent</u>				
Annual payments	22,794	13,306	10,261	8,822
Per cent change from 5 year term		(42%)	(55%)	(61%)
Total payments	113,970	133,060	153,915	176,440
Per cent change from 5 year term		17%	35%	55%

It can be seen that, at 6 per cent interest, a change in the period from 5 to 15 years reduces the annual payment by 57 per cent. However, the total of the payments that must be made by the employer and charged to his earnings statement before the debt is discharged increases by 30 per cent, which would clearly worsen Canada's competitiveness - unless perhaps the concern is with availability of capital rather than real cost competitiveness. With interest rates more in line with what we have been experiencing in recent years, the spread becomes even more

disadvantageous. For example, even at 7 per cent, annual payments are reduced by 55 per cent but total payments are increased by 35 per cent.

Similar results will occur if amortization periods for initial unfunded liabilities are extended as shown in Table 3.

Table 3  
Amortization of Initial Unfunded Liability of \$100,000 by Payments Annually in Advance

	Periods of years			
	15	20	25	30
	(Dollars)			
<u>Interest rate 5 per cent</u>				
Annual payments	9,175	7,642	6,757	6,195
Per cent change from 15 year term		(17%)	(26%)	(32%)
Total payments	137,625	152,840	168,925	185,850
Per cent change from 15 year term		11%	23%	35%
<u>Interest rate 6 per cent</u>				
Annual payments	9,173	8,225	7,380	6,854
Per cent change from 15 year term		(15%)	(24%)	(29%)
Total payments	145,695	164,500	184,500	205,620
Per cent change from 15 year term		13%	27%	41%
<u>Interest rate 7 per cent</u>				
Annual payments	10,261	8,822	8,020	7,531
Per cent change from 15 year term		(14%)	(22%)	(27%)
Total payments	153,915	176,440	200,500	225,930
Per cent change from 15 year term		15%	30%	47%

It can be seen that at 6 per cent interest, a doubling of the period from 15 years to 30 years reduces the annual payment by 29 per cent. However, the total of the payments that must be made by the employer and charged to the earnings statement before the liability disappears is substantially increased, i.e., by 41 per cent. At interest rates experienced in recent years, the spread is even worse. For example, at 7 per cent, annual payments are reduced by 27 per cent while total payments are increased by 47 per cent. The Commission's conclusion is that for both types of liability the competitive disadvantage of the present rule has been exaggerated.

What is regrettable, if not suprising, is that none of the advocates of extended amortization called for more accuracy in the actuarial assumptions or for a way of trying to avoid the seeming inevitability of sizeable experience deficiencies every three years.

The Commission is of the opinion that the existing amortization periods are reasonable, keeping in mind the need for controlling the solvency of the plans and that in the event of wind-up of the plan promised benefits will only be paid to the extent they have been funded at the date of wind-up. The Commission therefore recommends that the existing amortization periods for the funding of experience deficiencies and initial unfunded liabilities remain unchanged.

#### Unfunded Actuarial Liability

Having examined the role of the actuary in the framework of the Pension Benefits Act we now turn to the item revealed by the actuary's work which is of most concern to plan sponsors and plan members - unfunded actuarial liability.

In its simplest terms, the unfunded actuarial liability is the sum of any balances remaining unpaid against experience deficiencies and other supplemental liabilities. It is also defined as the actuarial liability of a plan minus its assets on hand at a particular point in time.

As was shown in our earlier discussion, Actuarial Liability means different values for different actuarial funding methods. It is arrived at differently under the various methods. With accrued benefit methods, it is the present value of all pension benefits earned for actual service to date and no consideration is given to further pension benefits which may be earned by the employee in the future. With level premium methods, it is the present value of all pension benefits for both past and future service, less the present value of future normal contributions. With aggregate funding, there is no actuarial liability because future contributions are fixed at a level which covers all pension costs, except where there is a separate determination of "supplemental liability." (In the Pension Commission's study of October 1978, 6 of the 13 plans using aggregate funding had some "supplemental liability" as established at the time of commencement.)

Because the actuarial liability is method-dependent, the unfunded actuarial liability is in part method-dependent. To illustrate the point, we extended our example of the plan starting at our employee's age 40 with full credit for the previous 7 years of service discussed under Funding of Other Supplemental Liabilities by assuming that in the years following, the employer would pay the normal contribution and pay off the initial unfunded liability by equal annual instalments over 15 years. On the same assumptions as before, the first year's normal contributions and instalments to pay off the initial unfunded liability for the three plans under each of the various actuarial funding methods would have been as shown in Table 4. This table has been prepared to show as well what the unfunded actuarial liability would be if the employer's contribution for the first year ("First Year Total Payment") were paid into the plan the day after it started.

Table 4

Unfunded Actuarial Liability by Plan Type and Actuarial Method

	Actuarial liability on plan start-up(a)	First year normal contribution	Instalments over 15 years(a)	First year total payments	Unfunded actuarial liability, Day 2
(Dollars)					
<u>Flat benefit plan</u>					
Accrued benefit - unprojected	5,400	613	525	1,138	4,262
Level premium - constant dollars	11,928	880	1,159	2,039	9,889
<u>Career average plan</u>					
Accrued benefit - unprojected	2,578	345	250	595	1,983
Level premium - constant per cent of salary, entry age normal	10,928	587	1,061	1,648	9,280
Level premium - constant per cent of salary, attained age normal	7,798	699	757	1,456	6,342
<u>Final pay plan</u>					
Accrued benefit - projected	4,456	506	433	939	3,517
Level premium - constant per cent of salary, entry age normal	8,785	543	853	1,396	7,389
Level premium - constant per cent of salary, attained age normal	6,838	613	664	1,277	5,561
Aggregate funding	-	939	-	939	-

a Relates to Initial Unfunded Liability at time of plan start-up.



When these figures are examined and it is remembered that the employee, service and pension entitlement are the same in all instances (but differ among the plans), then it is clear from the variety of figures for the unfunded actuarial liability for every type of plan that this figure by itself is not an indicator of the health of one plan as compared to another. In fact, in the case of the final pay plan, the actuarial funding method which shows the lowest unfunded actuarial liability - Aggregate Funding - also has a lower contribution rate than the two level premium methods and fewer assets on hand to meet the plan's obligations. (However, the contributions will eventually be greater under the Aggregate Funding method, since the instalments or special payments against supplemental liability are flat dollar amounts ceasing after 15 years, whereas the normal contributions on the Aggregate Funding method will all rise with salary.) Furthermore, the Level Premium - constant per cent of salary, entry age normal method shows about twice the amount of unfunded actuarial liability shown under the Accrued Benefit - projected method (\$7,389 vs. \$3,517) yet it also has about 50 per cent more in assets (\$1,396 vs. \$939).

It seems clear then that the absolute dollar amount of the unfunded actuarial liability cannot be used to judge the relative soundness of different plans unless the same actuarial funding methods have been adopted. Nor can this be judged by expressing such liabilities in relation to the net worth or earnings of the individual employers and then comparing them, because the earnings figure in particular is subject to wide swings from year to year and could affect these relationships. However, the trend or rate of change in all of these - absolute dollars, per cent of net worth, number of years' earnings - is definitely significant as an indication of future costs to be met, or the degree of funding of these obligations, or the size of any new contractual commitments by employers. If the same actuarial funding method is consistently used in a particular plan, then a rapid growth in the amount of unpaid obligations (unfunded actuarial liability) could well be a cause for concern.

This is far from clear to the public, or even to some of those working fairly closely with pension plans. For example, the Teachers' Superannuation Fund had unfunded actuarial liabilities of \$558 million in 1972; these jumped to \$1,397 million in 1975. During the hearings we asked a senior representative of the teachers whether this was causing them some concern and the reply was negative. The figure of \$1,397 million, it was suggested, could have been changed by the actuary to virtually any other amount.

Retirees of the Hospitals of Ontario Pension Plan appear not to be troubled by this item either. Some of their representatives in Hamilton appeared at our hearings. Referring to the fund statement supplied to

employees and retirees showing assets much in excess of the annual pension payout, they asked why higher pensions could not be paid. There was a footnote to the statement, showing unfunded actuarial liabilities in the considerable sum of \$37 million; when a Commissioner commented on this, it was clear that the retirees' representatives had not noticed it nor did they understand its meaning or significance.

These groups are not unique. "Unfunded actuarial liability" is a confusing if not meaningless term to the public. While perhaps employers should ultimately be accountable for this condition, we believe a poor job of explanation and communication by actuaries has been a major contributing factor.

Existence of an unfunded actuarial liability in itself obviously tells us little about the financial position of the employer or the plan. First of all, the term refers to a contingent liability; it does not oblige the employer to make any payments beyond those due at the termination date. From the employees' viewpoint, moreover, the fact that an unfunded actuarial liability is present is not always evident, even at the time of a wind-up. Solvency of a plan at termination may prove entirely adequate if, for instance, investments are realized at a high percentage of their book value, and (as has been the case in the recent period) annuities are purchased for member's benefit entitlements at highly favourable rates. Liabilities on an ongoing basis, furthermore, are usually much higher than those for vested benefits alone; as a consequence, members who have attained the necessary age and service for vesting seldom experience a reduction in their basic pension entitlement.

An unfunded actuarial liability is recognized by accountants as a contingent liability. It is a requirement of the Canadian Institute of Chartered Accountants that its amount and the rate at which it is being charged to operations be shown in a footnote to the financial statements.<sup>(19)</sup> There are also requirements under the Business Corporations Act of Ontario and the Ontario Securities Act that public companies should disclose in their financial statements the amount of unfunded pension liabilities and the manner in which they will be liquidated.

The fact that unfunded actuarial liabilities are large in amount or accelerating rapidly is not necessarily cause for alarm. Many different actuarial funding methods are in use, and we found that the unfunded actuarial liability is partly method-dependent. Level premium methods often develop liability figures a great deal higher than the earned benefit figures developed under accrued benefit methods. A significant number of Ontario's large plans (each having over 1,000 active members) use Level Premium methods. A variety of asset valuation methods are in use as well, and we found that some of these, even though consistently

followed, can have distorting effects on the amount of unfunded actuarial liability. We noted in particular the method whereby fixed income securities are valued at the actuarially assumed interest rate. Finally, whether the plan uses conservative assumptions or otherwise can make a significant difference in the amount of unfunded actuarial liabilities.

As for the fact that the amounts are increasing rapidly, it is important to know the source of such increases - experience deficiency or other supplemental liabilities. If the latter, it may relate to plan improvements or strengthening of actuarial assumptions. If a plan improvement is involved, we must presume it was a deliberate and measured act by the employer and that regular payments will be scheduled to liquidate it over 15 years at most. If the strengthening of actuarial assumptions is involved, it may be that the employer has discovered to his surprise and regret that his pension plan is going to cost more than originally estimated. And if an experience deficiency is the cause of the increase, then the employer has discovered positively that the plan is costing more in the short term at least, and possibly in the long term as well. This should be the most unpalatable source of increases in unfunded actuarial liabilities.

That is not to say that some large, rapidly increasing unfunded actuarial liabilities should not be a cause for concern. They can represent a significant, even onerous, obligation to be charged against the employer's future operations. They may signal an unhealthy trend in underlying pension costs and in new contractual commitments by the employer. They could tax the resources of an enterprise during periods of unsettled economic conditions such as those experienced in the 1973 OPEC crisis. Part of the problem with adjustment to avoid further experience deficiencies is that actuarial valuations need only be done every three years and, allowing for reporting time, it may be four or even five years before the experience deficiency is revealed. Each year in the meantime, the adequacy of funding may have fallen further behind.

The key to permitting unfunded actuarial liabilities to continue over a period, whether for experience deficiencies or supplemental liabilities, is the ability of the employer to continue in business and make the orderly payments required both for regular funding and to cover the extra liabilities. There should be fewer unpleasant surprises to employees when an employer is no longer able to carry on or the plan is wound up for some other reason. How well funded, therefore, are pension plans in Ontario?

#### FUNDED STATUS OF TRUSTEED EMPLOYMENT PENSION PLANS IN ONTARIO

In 1975, the Pension Commission of Ontario published a report on the funded status of 943 trustee pension plans registered by the commission out of a total of 2,564 plans exclusive of those in the



public sector. The underlying data were derived from actuarial valuation reports filed in 1971, 1972, and 1973. It was acknowledged that valuations on accrued benefit and level premium methods were not fully comparable, and that very different sets of assumptions were used in the different reports. It used the surplus or unfunded actuarial liability as shown in the actuary's report, no matter what assumptions, methods, or asset values were adopted. There are thus several important limitations to the study, all identified by the commission; but it proved a useful and informative reference. A summary of the study's findings is set out in Table 5.

Table 5

Funded Status of 943 Trusteed Pension Plans in Ontario, 1971-73

	Plans showing a surplus	Plans showing an unfunded actuarial liability	Total
(Thousands of dollars)			
<u>Funded status</u>			
Total liabilities	446,760	3,495,954	3,942,714
Total assets	504,595	2,375,103	2,879,698
Surplus	57,835		57,835
Unfunded actuarial liability		1,120,851	1,120,851
<hr/>			
Number of plans surveyed	301 (32%)	642 (68%)	943
Number of employees covered	77,260 (16%)	406,770 (84%)	484,030

Source Pension Commission of Ontario.

The table shows that 32 per cent of the plans covering 16 per cent of the employees reported a surplus, the amount of which averaged 13 per cent of the total liabilities. Sixty-eight per cent of the plans covering 84 per cent of the employees reported an unfunded actuarial liability the amount of which averaged 32 per cent of total liabilities. This of course does not imply that plans with an unfunded actuarial liability could only meet 68 per cent of the earned pensions if the plans were wound up, since many actuarial valuations were on a projected basis or allowed for future salary and wage increase or for other conservative elements.

The unfunded actuarial liability of \$1,121 million is further analyzed between initial unfunded liabilities and experience deficiencies and by plan type in Table 6.



Table 6

Unfunded Actuarial Liability by Plan Type, 943 Trusteed Pension Plans in Ontario

Type of plan	Initial unfunded liabilities	Experience deficiencies	Total unfunded actuarial liabilities
(Thousands of dollars)			
Career average plans	127,632	2,526	130,158
Final pay plans	227,387	14,841	242,228
Flat benefit plans	728,158	4,533	732,691
Composite benefit plans	15,403	371	15,774
All plans surveyed	1,098,580	22,271	1,120,851
Per plan member			
(Dollars)			
Career average	1,444	29	1,473
Final pay	2,031	133	2,164
Flat benefit	3,737	23	3,760
Composite	1,326	32	1,358
All plans surveyed	2,700	55	2,755

Source Pension Commission of Ontario.

From Table 6 we see that of the total unfunded actuarial liabilities of \$1,121 million, \$1,099 million was initial unfunded liability and only \$22 million was experience deficiency. While inflation had not reached high levels in the 1971-73 period, the definition of experience deficiency was then more stringent than it is now since the test valuation procedure (permitting some part of an experience deficiency to be classified as initial unfunded liability) had not been developed. Possibly experience deficiencies would account for a larger part of unfunded actuarial liabilities in a highly inflationary climate, but this may not be readily discernible with the test valuation in operation.

When the survey results are analyzed by type of pension plan it is seen that experience deficiencies were most serious in final pay plans, no doubt because of salary increases. However, flat benefit plans had the largest unfunded actuarial liabilities per plan member and the lowest experience deficiency. This reflects the fact that inflation may be met through negotiated pension increases in flat benefit plans, giving rise to new initial unfunded liabilities, whereas in final pay plans pension increases are automatic with salary increases, and may give rise to experience deficiencies. The ability to distinguish between classes of liability in these plan types has been lessened by the amendments to the Pension Benefits regulation allowing the test valuation.

A later funding study has not been done by the Pension Commission of Ontario for the years after 1973 when salaries rose rapidly with inflation, nor has anyone else produced such information about the funding status of private and public sector employment pension plans in Ontario. However the Financial Executives Institute of Canada has conducted four pension plan surveys among its members since 1975, and these have produced some useful and more current information on the subject, although it relates to Canada as a whole rather than just Ontario.

The fourth FEI pension report was released in March 1980 and covers 205 respondents out of a possible total of some 550. The employers represented by the respondents had a total net capital employed of \$227.8 billion, 990,000 employees, and pension funds (as of the 1978 fiscal year end) totalling some \$14.6 billion - the equivalent of 6.4 per cent of net capital employed. Pension funds in this sample approximated 41 per cent of 1978 assets of trustee pension funds in Canada as reported by Statistics Canada.

Like the Pension Commission of Ontario study, this work has important limitations, but it contains some interesting information about the funding status of private employment pension plans in Canada, including the following:

1. Although unfunded actuarial liabilities exhibited significant growth over the survey period (1974-1978), their growth rate was less than that of total actuarial liabilities. Additionally, unfunded actuarial liabilities as a percentage of shareholders' equity and net capital employed exhibited a more stable pattern in this report compared to the previous FEI survey.
2. At latest actuarial valuations (mainly 1978) 57.0 per cent of respondents indicated their plans had actuarial deficits, whereas 32.2 per cent of plans were in a surplus position. Use of aggregate funding or other actuarial valuation methods which resulted in no surplus or deficit accounted for the remainder of the plans.
3. Average unfunded liabilities and experience deficiencies at latest actuarial valuations (mainly 1978) declined from 22.2 per cent to 20.2 per cent of total liabilities.

With regard to public sector employment pension plans in Ontario, the Commission's consulting actuary, Keith H. Cooper, carried out a study in late 1978 of the six major plans. The latest information on their funding status at that time is summarized in Table 7. (A full discussion of funding of the public sector plans is to be found in Volume VI of the Commission's report.)

Table 7

## Funding Status of Six Major Public Sector Employment Pension Plans in Ontario

	Actuarial valuation date	Actuarial valuation method	Ongoing basis		Wind-up basis(a)	
			Unfunded actuarial liability or (surplus)	Per cent total liabilities	Unfunded actuarial liability or (surplus)	Funded ratio
			(Thousands of dollars)	(Per cent)	(Thousands of dollars)	(Per cent)
Public Service Superannuation Fund (PSSF)	Dec. 31, 1976	Level premium entry age normal	505,355	19.3	214,426	86
Teachers' Superannuation Fund (TSF)	Dec. 31, 1975	Level premium entry age normal	1,397,178	20.6	375,190	85
Ontario Municipal Employees' Retirement System (OMERS)	Jan. 1, 1977	Accrued benefit unprojected(b)	(110,632)	14.6	Not available	Estimated over 100
Hospitals of Ontario Pension Plan (HOOPP)	Dec. 31, 1976	Accrued benefit projected	122,133	20.6	Not available	Estimated over 100
Ontario Hydro Employees' Pension Plan (HYDRO)	Dec. 31, 1976	Accrued benefit projected	142,530	15.9	Not available	Probably about 100
Ontario Workmen's Compensation Board Superannuation Plan (WCB)	Dec. 31, 1977	Level premium entry age normal	(13,024)	(13.2)	(18,740)	134

a Accrued benefit method without projections for salaries or allowances for future turnover.

b OMERS uses accrued benefit projected method for final average plan from January 1, 1978.

Source Keith Cooper, Appendix A, "Report on Public Sector Pension Plans."

Plans which show surpluses (e.g., OMERS and WCB) are fully funded according to the Pension Benefits Act. The other four have large unfunded actuarial liabilities but have made provision for their orderly liquidation over time, and so are provisionally funded according to the Pension Benefits Act. Accordingly, all six plans are deemed under the act to be solvent.

If the Commissioners were asked simply, "Are the trustee employment pension plans in Ontario safe?", probably the best answer we could give based on these studies would be, "We think so" or, "By and large, yes." There is no problem with money-purchase and insured plans, but it is a difficult question to answer for some 3,000 defined benefit plans collectively - infinitely more so than for an individual plan. The most obvious measure of a pension plan's strength is the degree to which assets have been set aside to pay retirement benefits, or the amount of unfunded actuarial liabilities.

Since the most current formal report we have on unfunded actuarial liabilities from the Pension Commission of Ontario is based on actuarial valuation reports as far back as 1971-73, we sought the opinion of J. Wells Bentley, Superintendent of Pensions for Ontario. It was his opinion that the funded status today (early 1980) is not materially different from that in the last study because the combination of strengthened actuarial assumptions since the early 1970s and good investment performance by many pension funds would have improved the overall funded status. This is in line with the results of the recent FEI study just mentioned and Keith Cooper's assessment of public sector plans for 1976 and 1977.

A second way to judge the efficacy of funding to date is to look at the actual experience in wind-ups and bankruptcies. The Superintendent of Pensions reported that in the last eight years there had been only one instance among all the plant shutdowns or other voluntary terminations or bankruptcies in which all employees vested under the terms of the plan (which can be earlier but not later than age 45 and 10 years' service under the statute) had not obtained their full basic pension entitlement. The single exception resulted from the shutdown of the Prestolite plant in Sarnia at the end of 1978.(20) In that case 96.5 per cent of the basic benefits were paid; and the basic benefits might have been fully covered if the union and management had not agreed to make special provision for those eligible for retirement but not yet retired.

The Prestolite case illustrates two important points on funding which must not be ignored. Benefits arising from improvements under the plan paid for as supplemental liabilities over 15 years and not yet paid for at the time of the closure were cut back so that they were paid only to the extent funded at the time of the closure. The Commission is concerned that this effect of amortized funding is not understood or communicated to the employees. A series of benefit improvements



with their accompanying unfunded liabilities can be instituted with no regulatory control whatsoever as long as the cost is provided for by special payments over as long as 15 years.

The improved benefits may be communicated to the employee who then expects to receive them as part of the pension benefit without concern about funding. It comes as a shock and disappointment to the employee to be told on a wind-up that benefits will be cut back. One would doubt whether the employee could or would distinguish between basic benefits and those payable "to the extent funded." Flat benefit plans, found primarily in union-organized work settings, are customarily improved each time a collective agreement is renegotiated. The result is a series of improvements funded over 15 years with different cycles for completion of the amortization. Although union officials may be aware of the problems, the Commission is not satisfied that the matter is always brought to the attention of employees in a clear enough manner. The Commission sees the need for explicit disclosure to the individual employee on the funding process for each plan improvement.

The second point of concern to the Commission arises from a type of plan improvement which has an immediate but indirect effect on the funding. Such an improvement is a provision for early retirement without actuarial reduction. The effect of this change is hard to predict for funding purposes. The availability of an unreduced pension may be more attractive than expected, so that more employees retire early. In this case there will be an extra drain on the fund, leaving less available to cover basic pension benefits; but the shortfall will not be measured until the next actuarial valuation, when an experience deficiency may be revealed. In the result a benefit is being paid (not just promised) for which the funding is amortized over 15 years, while also producing an experience deficiency which will not be covered for 5 years. If the plan is wound-up shortly after such improvement, the basic pension benefits may well be in danger of cut-back.

With these problems implicit in the funding structure the Commission finds it difficult to rely on the experience to date in assessing the financial soundness of existing employment pension plans. The fact that basic vested benefits have generally been protected from cut-backs on wind-up tells us nothing about losses experienced by those who are not vested on a wind-up in situations where the funding is not sufficient to pay all accrued benefits. Nor does it reveal any of the complexities within the funding requirements of the Pension Benefits Act which permit certain types of benefits to be exempted from vesting so that there may be little protection for such benefits on wind-up even for those whose basic benefits are vested under the 45 and 10 rule. In particular, we recognize that "bridging benefits" - for those who retire before age 65, in amounts approximating expected payments from OAS and CPP - may be exempted from vesting under Section 13 of the regulation.

We also recognize that the past is not necessarily a reliable guide to the future. In the future there may be increased pressures on pension funds because of unfavourable economic conditions. With this in mind, there are a number of areas where the Commission believes changes should be made to improve funding and hence the protection of employee benefits. However in the Commission's opinion the recent attacks on the funding of employment pension plans, at least to the extent they concern Ontario plans, are not justified. They may arise either from incomplete understanding or, in some quarters, a desire for sensationalism. The Pension Benefits Act has provided orderly and sound financing for plans over the period since its inception in 1965. It has been administered with a view to balancing the need to protect the employee benefits and the need to encourage more employers to undertake pension plans.

### Funding Recommendations

#### Experience Deficiencies

An experience deficiency is a signal that actual experience is different from the actuarial projection for the funding pattern. In the mid-1970s when salaries had been increasing with inflation and investment returns were poor, the regulations were changed to allow some experience deficiencies to be treated like initial unfunded liabilities and so amortized over 15 years. This eased the burden on employers. However it also had the effect of obscuring the extent of experience deficiencies and thus the extent to which unfunded liabilities in the plan should give cause for concern. The Commission is concerned about the loss of a clear distinction between experience deficiencies and initial unfunded liabilities. It does not agree that the amortization period for experience deficiencies should be extended beyond 5 years nor that this should be accomplished indirectly through the test valuation.

The Commission recommends that the test valuation approach be discontinued. At the same time the Commission would like to see experience deficiencies reduced in the future. We were struck by the seeming inevitability of sizeable experience deficiencies every three years when short-term events are measured against long-term assumptions. We believe it should be possible to make more accurate assumptions as to interest, salary increases, termination rates and other actuarial factors for a three-year period (the duration of the valuation) than for the long term of thirty years or more. Certainly many companies already engage in budgeting and forecasting procedures which generate most of the data required for the short-term assumptions. Other items such as investment return are largely known at the valuation date; although capital gains or losses, if recognized in the interest rate, could cause substantial disturbances. While employers may have to pay more in the near term, we think they would prefer to see more realism in the whole process.

The Commission considered the use of select and ultimate rates for the assumptions in actuarial valuations, i.e., realistic short-term assumptions for say the three-year duration of the valuation and long-term rates thereafter. We note that the actuaries for the Teachers' Superannuation Fund have done just that for the interest rate and salary scale. However, we are persuaded that our approach may be overly simplistic - that it would complicate the calculations and increase both the technical expertise required and the cost of the actuarial work. It could be especially hard for small operations. We are therefore not making any recommendation on this point, but we commend to the actuarial profession and the employers for whom they work the idea that actuaries should pay closer attention to the early years in an actuarial valuation and use more explicit assumptions with a view to increasing the realism and reducing the margin of adjustment or experience deficiency. This and our recommendations below are all in line with the Commissioners' whole approach to pensions, which is that the relationship of the cost to the benefit should be readily and immediately visible.

With regard to discontinuance of the test valuation, pension plans should be allowed some time to adjust to the new, tighter condition. Since at the time of release of our report the expected latest actuarial valuations due for filing with the Pension Commission of Ontario will be those for periods ending in 1979, we decided that all actuarial valuations as of June 30, 1982 or earlier should be permitted to use the test valuation.

Our recommendations are:

The test valuation for determining experience deficiencies and initial unfunded liabilities should be discontinued and not allowed to be used for any actuarial valuation due after June 30, 1982;

Any experience deficiencies deemed to be initial unfunded actuarial liabilities under the test valuation in the past or the future up to June 30, 1982 valuations may be liquidated in accordance with the current rule, i.e., by an immediate lump sum payment or by equal annual payments over not more than 15 years from the valuation date as of which they were discovered;

All other experience deficiencies must be liquidated by an immediate lump sum payment or by equal annual payments over not more than 5 years from the valuation date as of which they were discovered.

We recognize that these recommendations are a return to the situation where flat benefit plans upgraded by periodic negotiations and updated career average plans have a distinct funding advantage over other defined benefit plans, since such upgrading results in an initial



unfunded liability and a 15-year amortization. This problem is discussed in the next section.

#### Other Supplemental Liabilities

Supplemental liabilities arise mainly from past service on start-up of a plan, plan improvements, and the strengthening of actuarial assumptions.

Initially a longer period (15 years) was allowed for financing these as opposed to experience deficiencies (5 years) on the grounds that all are desirable moves which should not be discouraged by too stringent requirements for payment.

One problem with such a rule is that in plans which regularly make updates or improvements in benefit levels (usually flat benefit or career average plans), whether through collective bargaining or otherwise, a string of successive improvements can each be only partly financed at any point in time. These are said to be thinly funded and, in the event of termination of the plan for whatever reason, benefits will only be paid to the extent funded at the time of wind-up. We had an unhappy illustration of this very condition in the Prestolite wind-up where the brunt of the shortfall in assets was borne by those employees who were not vested under the 45 and 10 rule and received nothing, even though some of them had more than 15 years' service and one had 25 years' service.

We considered providing greater funding security for benefits in the event of plan termination by requiring that a certain percentage of the cost of a plan improvement be paid up before new improvements were permitted. We considered requiring a more conservative actuarial funding method (e.g., level premium vs. accrued benefit) or a shorter payment period than 15 years for plans making frequent upgrades. We thought of requiring two years' extra instalments against outstanding supplemental liabilities in the event of plant shutdown or relocation; but that was rejected because it would create a double standard for plan terminations.

In the result, all the foregoing possibilities were rejected, partly at least because they could prove a deterrent to establishment of plans or to bargaining for improvements. We recommend, however, that the Pension Commission of Ontario study this matter with a view to bringing frequent improvements, especially of flat benefit plans, into line with the funding requirements for final average plans. The results of thin funding may be brought forcibly to light if current economic conditions force more plant closures. In addition, we recommend that the possibility of cut-backs in benefits funded over a future period be clearly brought to the attention of individual employees through the disclosure mechanism recommended in Chapter 13.



## TERMINATION OF EMPLOYMENT PENSION PLANS

### Voluntary Terminations

An employer has the right to terminate the pension plan at any time, subject of course to the terms of any collective agreement with a union. In that event all cash payments out of a trust fund will be taxed in the hands of the recipients, unless the payments are transferred with the approval of Revenue Canada to another registered employment pension plan or unless the funds are used to buy deferred annuities for employees. (Eventual benefit payments are taxable when received.)

Under the Pension Benefits Act, if a pension plan is wound up or terminated the employer is obliged to pay all amounts that would otherwise have been required under the funding rules up to the date of plan termination. The date of termination may not be made retroactive by the employer. Thus the fund at the time of wind-up should include all current service contributions plus a proportion of the payments to cover initial unfunded liabilities and experience deficiencies depending on the number of years since such liabilities were created. If the wind-up date is part-way through the plan year, part payments are due to that date.

An actuary's report must be prepared and filed with the Pension Commission to establish how the assets of the fund are to be divided, the first step being to establish the actuarial liability for all benefits for current employees, retirees, and terminated vested deferred annuitants.

Current employees are given full and immediate vesting for all service up to the wind-up date, regardless of the 45 and 10 rule or the plan's own vesting rule. In a contributory plan the liability is the greater of the value of the pension benefit earned or the employee's cumulative contributions, with interest if provided by the plan.

If there are more assets than needed to cover all these liabilities, no part of the surplus assets can revert to the employer unless the terms of the pension plan so provide. In the absence of such a provision, all assets belong to the plan participants. In 1972, the Supreme Court of Ontario found that the employees of Kent-McClain of Canada Limited were entitled to the surplus from a discontinued pension plan in spite of an attempt by the company to secure the surplus by an amendment to the plan just before it was discontinued.

If the assets are not sufficient to cover all liabilities, it is necessary to recalculate benefit credits for active and retired members alike according to whether or not certain benefits have been funded and to what extent. The precise nature of these cut-backs, under Section 21(7) of the act and Section 11 of the regulation, is governed in part by the statutory vesting rule and in part by the actuary's opinion as to

what reductions are necessary to "prevent unfair impairment of the other pension benefits accrued under the plan." Finally, the available assets must be allocated among the various classes of employees, retirees, surviving beneficiaries, and former employees with vested deferred pensions.

The allocation will favour vested benefits and also those benefits for which funding has been provided. It should be noted that not all benefits provided under a pension plan are necessarily protected. The Pension Benefits Act first protects the basic pension rights for vested employees. There is not a very clear picture of how various other benefits will be treated. The Pension Benefits Act specifically permits some benefits to be excluded from vesting. For example, "bridging supplements" are often exempted from vesting under Section 13 of the regulation and are not protected on wind-up under the primary protection accorded vested benefits. Escalated Adjustments (indexing payments tied to changes in the CPI or AIW) may be exempted from funding under the regulations and likewise receive no protection against cut-backs on wind-up. Certainly it is highly unlikely that many plan members are aware of the complexities of allocation of assets on wind-up.

Even if retirees receive first priority in the distribution of assets, their benefits may be cut back to less than the pension they received at retirement. For example, if a person retired two years after a plan improvement had been made and the plan were to terminate three years later, this person's pension could be cut by 10/15ths or two-thirds of the amount of the increase if the funding of that improvement had been made only to the extent of one-third (5 years' payments of the 15 scheduled).

It is conceivable the same employee would have received a post-retirement improvement as well and would have that cut as well, and by more than two-thirds. The first reduction, however, is of greater concern. Such a reduction is repugnant to the whole concept of pensions and their funding, which is that a promise is made and money is set aside systematically over the entire worklife so that when retirement age is reached the necessary funds should be on hand to provide the promised pension.

The Commission therefore recommends that the Pension Benefits Act be amended so that the amount of the pension benefit payable at time of retirement to an employee who retired at normal retirement age or who is eligible to retire at the time of the wind-up shall be deemed to be fully funded, regardless of the extent to which it has in fact been funded. This will ensure that in the event of a plan termination, this group of pensioners will at least be credited with the full amount of the pension they were receiving at retirement. They would still be eligible for post-retirement improvements only to the extent funded. The Commission also recommends that this principle be extended to those who have taken early retirement (with reduced or unreduced pensions) and

to those who were eligible for early retirement at least six months prior to the date of wind-up.

The Commission does not recommend any extra funding immediately to accompany this provision; but where a plan has segregated its assets between active lives and retired lives for retirees opting for participating annuities, a transfer of funds should be made to the retired lives accounts to reflect this provision. In due course actuaries should include in their calculations the effect of this fully funded entitlement.

The Pension Benefits Act of Ontario does not set out priorities for allocations on wind-up to the classes and categories mentioned above, although it does provide that all contributions made after the act came into force in respect to the deferred life annuity of an individual are to be applied towards that annuity. The Quebec Supplemental Pension Plans Act does provide an explicit order of priority to be applied when a pension plan is being wound up, the first four of which are:

1. the deferred annuity prescribed in the act for every employee and former employee as if he had terminated his employment on the day the plan terminated;
2. the pensions to pensioners and employees above retirement age arising from their contributions made after 1965, other than voluntary additional contributions;
3. the pensions to other employees arising from their contributions made after 1965, other than voluntary additional contributions;
4. the pension from voluntary additional contributions.

The low priority attached to voluntary additional contributions is in sharp contrast to the position in the United States, where they are placed first. This illustrates the difficulty in deciding among the claims of different groups - for example, pensions to present pensioners, pensions vested under the act, and pensions paid for by employees' own contributions.

Although the Pension Benefits Act does not set out wind-up priorities, this feature is often part of the plan itself. The PCO has established internal guidelines for this purpose where the plan is silent, but they are capable of wide variation in application. We recommend that the priorities be made explicit in the Pension Benefits Act or the regulation and that, where the pension plan is silent, the order be as follows and the amount of their claims be as indicated in the bracketed notes (each category shall take precedence over those following it; members in a category shall share rateably):



## Category I

Pensioners who retired at normal retirement age  
Employees having attained normal retirement age and eligible to retire but not retired at the date of wind-up  
Early retirees  
Employees eligible to retire early at least six months prior to the date of wind-up  
(Pension benefits payable at start of retirement in full; post-retirement improvements to the extent funded)

## Category II

Statutory deferred life annuitants, active and terminated  
(Pension benefits to the extent funded)

## Category III

Members vested under the plan provisions  
(Pension benefits to the extent funded)  
Non-vested members  
(Required pension contributions)

## Category IV

All members  
(Additional voluntary contributions)

## Category V

Non-vested members  
(Pension benefits to the extent funded)

## Category VI

Vested and non-vested members  
(Other benefits, including bridging supplements if not pre-funded and escalated adjustments if not pre-funded)

## Bankruptcies

Since pension fund assets must be held by an insurance company or trustee, they will not be lost if an employer goes bankrupt or simply disappears. The benefits and position of employees, retirees, etc., in the pension fund of a bankrupt employer are determined on the same basis as for voluntary terminations.

There is however one exception to the segregation of assets and that concerns employees' contributions deducted by the employer at source and the employer's own required contributions for current service



cost and special payments. The Pension Benefits Act regulation now requires that all amounts deducted from employee's pay for pension contributions be forwarded to the trustee of the plan within 30 days of the end of the calendar month in which the deduction was made. Employer contributions, on the other hand, are due 120 days after the end of the fiscal year of the plan for which such payments are being made.

Sometimes an employer will become insolvent or be put into bankruptcy before employees' contributions have been forwarded to the trustee, or employer's contributions have been forwarded to the trustee.

Section 23(a) of the Pension Benefits Act purports to create a trust for all sums received by an employer from an employee for payment into the pension plan and similarly for any employer contribution that is due under the plan. However, the act makes no provision for the enforcement of the trust by statutory lien or other such means, and it is doubtful if the trust as presently constituted under the act is enforceable. To the extent that such legislation falls within the federal bankruptcy jurisdiction, any provincial initiative to enforce the trust may be beyond the legislative authority of the province.

No special protection is accorded to either employee or employer contributions under existing federal bankruptcy legislation. The pension plan trustees can claim as ordinary creditors only. However, proposed bankruptcy legislation may provide some protection for pensions, and steps should be taken to achieve this protection. Introduction of Bill S-11, the Bankruptcy Act, 1978, has brought a recommendation from the Senate Committee on Banking, Trade and Commerce as follows:

"...the creation of a government administered fund out of which unpaid wages of employees could be paid in the event of bankruptcy, with the plan being funded by employer and employee contributions...."

Still another provision would expand the definition of "wages" for bankruptcy purposes to mean:

"...salaries, fees, commissions, and other compensation for services, including vacation pay, pension, health and welfare contributions, but does not include severance pay."

The maximum total amount given priority under this provision would be \$500 per employee.

Notwithstanding these developments at the federal level it would seem advisable for the Government of Ontario to create by statute a lien to enforce the trust protection for employees' contributions and such employer contributions as are due under the plan. There is some precedent for such a lien in the Vacation with Pay Act and some judicial

precedent supporting the validity of the lien. We recommend that legislation for this purpose be passed as soon as possible.

Two other possibilities are available for protection in these circumstances. The first relates to the timing of payments. Since employee contributions must be remitted monthly, failure to do so will be noted by the trustee very early so that the trustee can alert the pension regulatory authority of the default. The Pension Benefits Act provides that a plan will be deemed to be wound up if the employer fails to make contributions, and the Pension Commission can notify the employer accordingly. This sets in train a number of provisions which should prevent further deductions being made from employees. There is however no power in the Pension Commission to enforce payment by the employer directly; nor can the trustee of the pension fund take action to obtain the payment of the employees' deductions, since the trustee is a passive receiver of the monies. This leaves the employees in the unsatisfactory position of having to bring a class action against the employer or the trustee in bankruptcy. For this reason the Commission recommends that the Pension Commission of Ontario be given specific power to act on behalf of beneficiaries and potential beneficiaries of a pension fund to secure the payment of all monies due into the fund. As we will discuss later (Chapter 13) this is a change in role for the Pension Commission, but it would appear to be necessary to resolve this problem.

Employer contributions should be required sooner than 120 days after the fiscal year end of the pension plan. Where employer contributions are explicitly related to those of employees, as in a money-purchase plan, the Commission recommends that employer's contributions be made simultaneously with those of employees, i.e., within 30 days of the end of the calendar month in which the contributions are deducted from the employee. In defined benefit plans the employer's obligation is different and therefore payment should not be required monthly. However, since the amount of the employer's contributions is determined ahead of time in the actuarial report there is no reason why the payment should not be made in four equal instalments, each within 30 days of the end of the quarter, during the plan year. The Commission recommends accordingly. This reduction in the time allowed for payment will permit earlier action to force payment of required contributions. Again, the power to bring such action should be vested in the Pension Commission of Ontario.

#### Plant Shutdowns and Relocations

Sometimes an employer closes down a plant and relocates the business, for any number of reasons. If there is a pension plan, it can be closed down too. In the process, there may be an offer of jobs to existing employees in the new location, in which case the employee's pension service is continued, but often that is not practicable and the plan is terminated. In these circumstances as in any other voluntary

termination, employees are entitled to full credit for their pensionable service even if not otherwise vested.

Sometimes a multi-plant employer operates a single pension plan for employees in all locations. There have been instances where in such circumstances employers have closed one plant and terminated employees on an individual basis with no pension rights if not vested. Where that happens, if the Pension Commission is of the opinion that the employer is discontinuing a part of the operations in which a substantial number of pension plan members are employed, it may declare the pension plan to be wound up in whole or in part.<sup>(21)</sup> In a partial termination (as in a full termination) the terminated employee receives full credit for pensionable service to the date of termination, whether otherwise in a vested position or not.

In both sets of circumstances, the rules for establishing the actuarial liability for the benefits and allocating the assets are the same as described above for other voluntary terminations. While pension rights are protected, there is no guarantee that there will be sufficient assets in the pension fund to honour those rights. The Prestolite case previously mentioned was brought to our attention in the course of our hearings. The company had a non-contributory plan for its employees. After several meetings between representatives of the union and the corporation, the final decision was made to close the plant as of December 31, 1978. A letter dated December 21, 1978 from the company to all retirees, surviving spouses, and terminated vested employees advised that benefit cuts would have to be made as follows:

1. People who had retired at the normal retirement age of 65 would receive 75 per cent of the benefits they were receiving before the shutdown, i.e., the basic benefit promised on retirement and the supplemental benefits payable between retirement and age 65, whether or not these total benefits were fully funded.
2. People who had taken early retirement would receive 75 per cent of the "basic" benefits they were receiving before shutdown, and after March 1, 1979 they would lose the entire amount of any "supplementary" benefits, namely, the temporary bridge benefit payable until age 65.
3. Active employees who were eligible for early retirement would receive 75 per cent of the "basic" benefits they had earned up to December 31, 1978 but would receive no "supplementary" benefits. The benefits payable however would not be delayed until age 65 but would be put in payment immediately just as if these people had already retired.
4. Active employees who were not eligible for early retirement but who met the 45 and 10 vesting rule would receive a deferred pension (i.e., payable starting at age 65) for 75 per cent of



the "basic" benefits they had earned up to December 31, 1978, i.e., their loss would be 25 per cent of the pension benefits they had earned to the date of the plant closing.

5. Active employees who did not meet the 45 and 10 vesting rule would receive nothing, whether or not they were vested under the terms of the plan.
6. Terminated vested employees would receive the full amount of whatever pension benefits they had earned, payable starting at age 65.

As it turned out, the actual cut-backs were quite different, as all the people who were told they would get 75 per cent of certain benefit levels actually received 96.5 per cent of the basic benefit.

Looking at what went wrong with this particular pension fund, there appear to have been two main forces at work other than the business situation of the employer. As mentioned in the previous section, there had been fairly regular plan improvements over the years which were being financed over 15-year periods and were therefore only partly paid up. Secondly, there was an early retirement feature which was putting a strain on the fund. At time of wind-up it was apparently agreed by both company management and the union that it would be only fair to treat those employees who were eligible for retirement but still active, on the same basis as the ones who had taken early retirement. This meant starting payment of their pensions immediately rather than waiting until they reached age 65. If the decision had been made the other way, it is the opinion of the actuary involved that all "basic" benefits could have been paid in full and some of the "supplementary" benefits of those already retired and those eligible for early retirement could have been paid. The basis of this statement is that the liability for the employees who lost everything (approximately 80 active employees who were not vested under the 45 and 10 rule) represented only about 3 per cent of the total liabilities of the plan exclusive of the "supplementary" benefits. In this instance, the scaling-down or loss of benefits to the employees was caused in part by an experience deficiency related to early retirement provisions and by initial unfunded liabilities created by negotiated plan improvements which were being financed over 15 years and were only partially funded.

We were told by the Superintendent of Pensions that the Prestolite case was the only one among all plant shut-downs or other voluntary terminations or bankruptcies in the past 5 to 8 years in Ontario where the employees vested under the rules of the plan did not get 100 per cent of their basic pension entitlement. However, some who were vested only by virtue of the "immediate vesting" provision for plan terminations certainly lost some basic entitlement. Again, this invites the question as to whether plan improvements and possibly experience deficiencies as well should be financed over shorter periods to provide



greater security for the employees. What has been done in the United States is to allow longer financing periods for plan improvements (30 years vs. 15 in Ontario) and experience deficiencies (15 years vs. 5 in Ontario) while providing plan termination insurance as well. The Commission therefore examined the U.S. program and experience.

#### Plan Termination Insurance in the United States

Steps have been taken in the United States to protect pension plan participants and their beneficiaries from some of the financial consequences of plan termination. Effective July 1, 1974 plan termination insurance under the Employees' Retirement Income Security Act (ERISA) was provided for defined benefit plans through a government-operated non-profit organization, the Pension Benefit Guarantee Corporation (PBGC). It does not cover defined contributions plans, i.e., money-purchase plans, profit sharing plans, or savings plans. The insurance is compulsory for basic benefits subject to certain limitations, and premiums are charged to employers at a fixed amount for each plan member.

The PBGC guarantees certain benefits to employees in the event of pension plan termination for any legitimate business reason. Clearly the date on which the plan terminates is critical, and provision must be made for partial as well as full terminations. The plan administrator is required to specify any "reportable events" that may lead to plan termination, including a benefit decrease, tax disqualification, or failure of the employer to pay money due to the fund. If the plan is terminated by the employer, due notice must be given by the administrator to the corporation. The corporation has the power to declare a pension plan wound up in a variety of circumstances.

Benefits insured are only those vested in participants prior to the termination date. Only basic benefits are insured, that is, benefits already being paid and normal pensions commencing at normal retirement age. Subsidiary benefits such as early retirement supplements, future cost-of-living increases and benefits arising on future death are not covered.

Pensions guaranteed by the PBGC are subject to a maximum which is the lesser of (a) a pension actuarially equivalent to a pension equal to the employee's last five years' average earnings, payable from age 65, and (b) \$750 a month indexed according to the social security ceiling, which today would be approximately \$1,100 a month.

Plan benefit improvements may not be covered. The PBGC guarantees at the time of termination the level of benefits in effect five years prior to the termination. Benefit improvements that took place within this five-year period will be guaranteed at a rate equal to the greater of (a) 20 per cent, and (b) \$20 a month for each year during which the amendment was in effect. Therefore, benefit improvements taking place shortly before the plan termination might not be fully insured.

Special rules will apply to multi-employer pension plans when the scheme is extended to that class of plan.

If the PBGC determines that pension fund assets are sufficient to provide the guaranteed benefits, the employer may proceed to wind up the plan. If the assets are deemed insufficient they are taken over by the PBGC. To the extent that assets are insufficient to provide the guaranteed benefits, the PBGC may recover from the employer an amount up to 30 per cent of the employer's net worth as it was within 120 days prior to the plan wind-up. The original purpose of this provision was to make employers act responsibly in funding pension plans; but employers may buy contingent liability insurance against this risk.

Since the benefits insured are subject to the limitations mentioned above, and since the fund assets may be sufficient to provide some benefits above the insured amount, the PBGC has set out priority classes for allocation of assets. These are:

1. employees' additional voluntary contributions;
2. employees' regular contributions or equivalent benefits;
3. pensions that have been or could have been in force for three or more years;
4. other benefits that would be insured but for the \$750 limitation;
5. other vested benefits;
6. all other benefits under the plan.

It is noticeable that a high priority is given to employees' contributions or the benefits provided thereby. Also the benefits insured are those based on the vesting rule in the pension plan, even if it is more liberal than required by ERISA. Under pension benefits legislation in Canada the emphasis is on the minimum vesting required by the acts, regardless of what the plan provides.

As mentioned before, the U.S. system allows longer periods for paying off plan improvements and experience deficiencies, but in compensation provides a guarantee of certain vested benefits.

The PBGC has faced severe problems in its short life; some were described by Claude Poulin, Assistant Director of the Social Security Department, UAW International Union in his testimony at the Commission hearings.

ERISA contemplated that insurance coverage against plan termination would be available for three groups: private employer plans; multi-

employer plans; and church and government plans. At present only the first group is insured and the premium rate, originally set at \$1 per member per year, is now \$2.60.

Many multi-employer plans are negotiated and their financial position is weak. The deadline for bringing these plans into the insurance system was postponed because the cost would have been very high and the incentive to terminate plans would have been great. For example, we were told that at the planned rates the PBGC could collect approximately \$4 million a year to cover all terminations in that year, whereas the potential liability of the PBGC might be close to \$4 billion.

Although the insurance is only payable if the plan is discontinued for legitimate business reasons, claims experience has been bad and notification has been received by the PBGC of many prospective claims, many of large amounts. Accordingly the PBGC is already considering proposals to restructure the plan termination insurance system by making the rules more restrictive. Apparently some consideration is also being given to setting premiums related in some way to unfunded actuarial liabilities.

#### Should Ontario Adopt Plan Termination Insurance?

A very small number of briefs were received recommending some form of plan termination insurance in this province. A few briefs maintained that Ontario does not need such a program because of our more stringent funding requirements. An additional difficulty for Canada beyond those experienced in the United States is the fact that pensions fall under provincial jurisdiction, while in the United States there is federal control. The Canadian Life Insurance Association touched on the point in its brief: "Such a scheme in Canada could probably operate effectively only at the national level. Not only are there many Canadian plans with members in more than one province, but no single province should be expected to assume alone the risks involved." (22)

It should be recognized that plan termination insurance along the lines of the U.S. scheme would not improve a situation such as that in the Prestolite case. There would be little or no protection for improvements made in the five-year period prior to wind-up and none for benefits other than basic benefits. Rights to early retirement and bridging supplements are not basic benefits. Therefore to solve the problems of Prestolite there would have to be vastly extended insurance coverage with concomitant expansion of cost. The extension in ERISA of the employer's liability beyond the obligations to the date of wind-up by attaching the net worth of the employer is contrary to the voluntary principle of employment pension plans. A move towards extension of the obligation could deter the establishment of new plans.



Ontario's Pension Benefits Act originally (1962-1963) empowered the Pension Commission,

"if deemed advisable, to establish or support the establishment of an insurance fund for the purpose of underwriting pension fund deficiencies arising because of the insolvency of pension funds."

While the object of plan termination insurance is clearly desirable, it is significant that the Legislature subsequently gave its consent to deletion of the enabling provision, evidently accepting the fact that the Commission had not seen fit to exercise its authority to initiate such a scheme. It remains for this Commission to assess the future need for termination insurance in the light of all the circumstances including, we must point out, our recommendations on various related matters such as funding and the proposed mandatory plan.

Up to the present the reluctance of the Pension Commission and the government to impose an insurance requirement on employment pension plans may be attributed both to a reliance on the solvency requirements of the Act and an aversion to unnecessary bureaucracy. If, for instance, the funding standards could be relied upon to create approximately the same degree of benefit security as a limited form of re-insurance, it is questionable whether the need for additional protection could justify the sizeable task of setting up an insurance organization and levying premiums on all pension plans.

It must be kept in mind that any practicable system of re-insurance must involve limitations and preconditions, if only to prevent the primary "insurer" from assuming risks in an irresponsible manner and passing those risks on to the re-insurer. Under the U.S. program, for instance, pension benefits created in the five-year period before termination are not entirely insured by the corporation; and all plans must meet funding standards which, although somewhat less stringent than Ontario's, may be presumed to gradually reduce the incidence and severity of plan insolvencies. The U.S. legislation therefore resembles our own as it was formulated in 1965, with the most obvious difference that under ERISA, the same gradual progress towards the desired level of solvency is accompanied by a scheme to support benefit payments in the marginal area not covered by prefunding. In view of the fact that Ontario's funding rules have been in effect about ten years longer than those introduced by ERISA and are more rigorous, the need for termination insurance in Ontario, even if contemplated in 1965, is not as readily demonstrated today. Again it should be emphasized that we refer to re-insurance comparable to the U.S. program, geared to the need to protect basic plan benefits and not (though desirable in theory) to guarantee a rapidly escalating level of pensions including supplements, indexed adjustments and similar improvements.

In our proposals for a mandatory, universal plan (Chapter 12) we have the basis of a pension component which will always be fully



funded and so will not require the support of re-insurance. In our recommendations on funding, moreover, we believe the groundwork is prepared for a significant improvement in solvency for all pension plans outside the framework of the mandatory plan and public programs. Finally, it is to be expected that the recommended rules for disclosure will be instrumental in achieving a more orderly development of employment pension plans - that is, improvements based upon adequate knowledge and appreciation of the cost and risks inherent in commitments which are to be funded over a period of years. The net effect of the existing legislation and the changes recommended in this report will be, in our opinion, equivalent to anything that might be brought about through plan termination insurance - and probably at a considerably lower overall cost to employers, employees, and the public. The Commission is of the opinion that plan termination insurance should not be undertaken by the Government of Ontario at this time. The next few years will be the testing period for the effectiveness of the Pension Benefit Guarantee Corporation in the United States. A close watch on its development may enable Ontario to avoid some serious pitfalls if later some type of plan insurance is to be undertaken.

#### FUNDING OF POST-RETIREMENT ADJUSTMENTS TO PENSIONS

In the early 1970s the advent of rapid inflation led to increased demands for adjustments to pensions in payment to maintain their purchasing power. If these adjustments were to become part of the pension plan they would immediately create new initial unfunded liabilities. If they were made outside the plan there was no assurance to plan members that they would continue. There were two responses to this problem. In the public sector separate adjustment funds were created under the Superannuation Adjustment Benefits Act, 1975, which operate on partially funded basis. For both private and public sector plans the Pension Benefits Act regulations were amended to allow exemption of adjustments related to changes in a general price or wage index from the funding requirements.(23) Where it was elected not to pre-fund escalated adjustments, payments made out of the fund for that purpose were to be deemed current service costs; contributions would have to be made for that year which included the cost of adjustment payments.

There are four different ways for these adjustments to be determined and paid out.

#### Adjustments Provided Through Pension Plans - Ad Hoc

First there are ad hoc adjustments provided through the pension plan. They are like any other improvement to the plan. They create a supplemental liability which may be paid off immediately in a lump sum or in equal annual instalments over a maximum of 15 years. Since the average age of retirees is likely to produce a payout of less than 15 years, this could mean financing such benefits partly after the

fact. The Pension Commission of Ontario recognized this point some time ago and is working on regulations which will assure the payments. We endorse this and recommend early implementation.

#### Adjustments Provided Through Pension Plans - Automatic

Next there are automatic adjustments, tied to changes in a general price or wage index such as the Consumer Price Index, and provided through the pension plan. The employer has the option of excluding these entirely from prefunding, and instead, funding them through the pension plan fund on a current service cost basis. This arrangement at least assures that fund assets for basic benefits will not be depleted to pay indexing; but it provides no assurance that the adjustments can and will be paid in the longer term.

As expressed in Section 2a. of the regulation, the basis for this option is that the adjustment amounts cannot be determined with certainty in advance. The Commission rejects this reasoning; very little in the actuarial valuation is determined with certainty in advance. What is more to the point is that without advance funding there is no assurance of continuity of payment of the benefit. As well, there is unlikely to be any general recognition of the cost of the benefit. This is contrary to the Commissioners' whole approach to pensions in that the relationship of the cost to the benefit should be clearly visible.

The Commissioners are of the opinion that if these adjustments are part of the pension promise they should be prefunded, i.e., they should be funded the same way as any other plan benefit. Accordingly we recommend the removal from the regulation of the exemption for funding of automatic post-retirement adjustments tied to a general price or wage index, by repeal of Section 2a. effective with all actuarial valuations as of a date later than June 30, 1982. This effective date is the same as for ending the test valuation and allows some time for pension plans to adjust to the new financial requirement.

We further recommend that any unfunded actuarial liability arising from the removal of the exemption from funding of automatic post-retirement adjustments be treated as a regular initial unfunded liability under the regulation, requiring liquidation by an immediate lump sum payment or by equal annual instalments over a maximum of 15 years from the date on which it arises.

#### Adjustments Provided Through Special Adjustment Funds - Automatic

The third type of adjustment again involves automatic adjustments, tied to a general price or wage index, but partially funded through special "adjustment funds." Examples are the Public Service Superannuation Adjustment Fund (PSSAF) and the Teachers' Superannuation

Adjustment Fund (TSAF). These are discussed in detail in Volume VI on Public Sector plans. Contributions are collected from active employees and their employers (currently 1 per cent of salary from each), and adjustment benefits are payable to employees who have retired under PSSF and TSF since January 1, 1976. In addition, these funds (PSSAF and TSAF) are used in the same manner to index the deferred pension entitlements of terminated employees.

In the Commission's opinion it is unfair to require contributions for indexing on this basis since, as with indexing on a pay-as-you-go basis, there is no assurance that employees will get any benefit. The problem is essentially the same: if these adjustments are part of the pension promise they should be fully prefunded.

Our earlier recommendation for the repeal of Section 2a. of Regulation 654 has the effect of precluding PSSAF and TSF from partial funding after June 30, 1982 for their indexing liabilities. These and similar funds should begin full funding on that date, be phased out in an equitable manner, or be combined with the general pension fund.

If the funds convert from partial funding and continue operations under the normal provisions of the Pension Benefits Act, any unfunded actuarial liability arising from the change would be an initial unfunded liability. We recommend that there be no new provisions along the lines of Section 2(13) of the regulation under the Pension Benefits Act which would allow plans for government employees to pay interest only - with no principal repayments - against this liability.

#### Adjustments Provided Outside the Pension Plan - Ad Hoc

The last type of adjustment is the ad hoc increase which is not written into the pension plan document and therefore cannot legally be paid out of pension fund assets. Such an adjustment is usually financed on a pay-as-you-go basis out of the employer's operating revenues.

Although employers may make such adjustment payments year after year to pensioners, they usually take care to announce and present them in such a way as to avoid any continuing obligation in a legal sense. Nevertheless, over time the retiree may come to expect and rely on these adjustments and perhaps to feel that the employer has at least a moral responsibility to continue them.

Since these adjustments are voluntary on the part of the employer, it is contended that if employers were required to bind themselves to them and fund for them in advance, they would be reduced in amount or withdrawn completely, with the employee the loser. The Commission accepted this reasoning and does not recommend any change in the present pay-as-you-go practice.



## INVESTMENT, CUSTODY AND MANAGEMENT OF PENSION FUND ASSETS

### Trustees

Contributions to pension plans may not be held by the employer but must be paid over to a third party. Revenue Canada guidelines and the Pension Benefits Act regulation require the funds to be administered by an insurance company, a trust company, individual trustees, the Government Annuities Branch, a Pension Fund Society, an arrangement administered by Canada or a province, or a combination of the above.

Insurance companies offer a variety of pension contracts. In some, the contributions go into a deposit administration fund or a segregated fund and the insurance company acts as little more than an investment facility.

A trust fund may be established, under a written trust agreement with a trust company or with individual trustees, to receive contributions and pay benefits. The rules for registration of pension plans under the Income Tax Act require that if there are individual trustees at least three must reside in Canada and one must be independent of the employer. It is permissible for annuities to be purchased for individuals by pension fund trustees and these insurance company contracts constitute part of the trust unless assigned to the employees.

The Canadian Government Annuities Branch was used extensively at one time but following amendments to the Annuities Act in 1976 it no longer issues any new contracts. Old pension contracts are still in force and it will be many years before all the annuity holders have retired, drawn their pensions and died.

The Pension Fund Societies Act permits the establishment of a non-profit corporation to manage a pension fund. This method is rarely used, and only a handful of Pension Fund Societies exists.

Generally speaking, pension fund assets must be held in Canada. A pension trust fund must be located in Canada. Exceptions may be made where a Canadian employer contributes for foreign nationals employed outside Canada, and in certain other instances.

A copy of the trust deed, insurance contract, by-law, collective agreement on pensions or other documents must be filed with the pension plan.

### Investment of Pension Funds

Conditions governing pension investments are detailed in regulations under the various pension benefits acts. If the pension plan is not registered under a provincial pension benefits act, the income tax authorities require that the investments conform to the investment



requirements of the federal Pension Benefits Standards Act and regulations. Provincial and federal investment regulations are essentially uniform.

Before outlining these regulations it should be noted that there is a tax penalty if investments in foreign securities exceed 10 per cent of the total pension fund. The investment income of pension plans registered under the Income Tax Act is normally tax-free, but a fund will have to pay a tax of 1 per cent per month on the amount of any foreign securities held in excess of 10 per cent of the fund at cost price. The Pension Benefits Act does not put a limit on foreign investments.

The purpose of the investment regulations is to prevent an excessive amount of the fund being invested in speculative securities, to ensure a reasonable diversification of risks, and to prohibit transactions involving conflict of interest.

All investments and loans must be made in the name of the fund or plan. Further, no officer or employee of the company and no administrator, trustee, employer or union may benefit directly or indirectly from any fee, commission or other consideration on account of an investment transaction. Pension funds may not be lent to various people, including an employer, employee, administrator, trustee, or their wives and children, except that an employee's residential mortgage in favour of the pension fund is not prohibited.

Permitted investments are described generally as those which may be made by an insurance company under the Canadian and British Insurance Companies Act or the Loan and Trust Corporations Act. Those provisions are amplified in the Pension Benefits Act regulation (s. 14), primarily by setting quantitative restrictions on certain types of investment otherwise permitted.

The fund may invest in any Government of Canada, provincial or municipal bonds, without limit as to quantity. The fund may also invest in eligible common stocks, being those which have an earnings or dividend record of at least 4 per cent for the last five years, subject to two limitations: the fund must not own more than 30 per cent of the common shares of any one company; and not more than 10 per cent of the fund may be at risk with one company, including the company's stock, bonds, notes, and other securities. This 10 per cent rule applies to securities of the plan sponsor in the same manner as to those of another company.

The fund may invest in real estate and leaseholds subject to the following limits:

- The limit on real estate that meets a certain test of quality is 4 per cent of the pension fund invested in any one parcel.

- The limit on income-producing real estate which does not meet the test is 2 per cent in any one parcel.
- The limit on real estate not producing income is 2 per cent of the fund in total.

The regulation also provides some flexibility through a so-called "basket clause," which allows the fund to hold a limited amount of securities that are not otherwise eligible. The basket may include up to 7 per cent of the fund in real estate and leaseholds and up to 7 per cent in other ineligible investments and loans. Thus up to 14 per cent of the pension fund at book value may be invested in securities that are not eligible under the normal rules.

Investment is allowed in a pooled, segregated or mutual fund or an investment corporation, provided such fund or corporation limits its investments to those permitted for a pension fund under the regulation.

Within the investment regulations, employment pension plans have wide latitude for selecting investments. Some plans invest entirely in equities, some entirely in debt instruments. Some invest directly in real estate, while others participate in pooled real estate funds. Some have no foreign investments, while others invest around the world, subject to the 10 per cent limitation.

It is clear to the Commission that the existing framework of laws and regulations has not proved constricting for the private pension industry generally. Indeed, despite the permissiveness of the rules on equity investments, most plans do not invest heavily in stocks. The median exposure to equities among funds measured on the A.G. Becker (Canada) survey has declined steadily in recent years, from 50.7 per cent in 1973 (just before the worst stock market decline in years) to 39.5 per cent in 1977 (just before the strongest market in years) and stood at 37 per cent at the end of 1979. Last year in fact, Canadian pension funds were net sellers of Canadian stocks. Capital appreciation resulting from a 40 per cent rise in the Toronto Stock Exchange Index should have meant an overall large increase in equity exposure; but the pension funds' total value in equities held steady during the year.

There has been some criticism within the industry of the 14 per cent limit on "basket clause" investments. In particular, it has been alleged that this prevents funds from investing in small Canadian businesses. The Commission has seen no persuasive evidence that the cautious approach of Canadian pension funds to equity investments is due to regulation. It seems rather to be a mind-set. Whether an expansion of the basket clause would mean a vigorous growth in equity investment in small companies is questionable; since few funds now make full use of the allowable 14 per cent, it is doubtful that a further increase would have appreciable overall impact. If funds are reducing their exposure to Canadian stocks generally, despite laws which permit them to

invest their total assets in Canadian stocks, it is improbable that they would be aggressive purchasers of more speculative investments if the regulations were eased.

Most public sector pension plans follow much the same investment practices as the private sector. Important variations occur in the following plans: PSSF, PSSAF, TSAF, TSF, and OMERS. In the first three, the total assets are represented by interest-bearing "Special Purpose Accounts" or bookkeeping entries in the accounts of the province of Ontario. TSF assets consist entirely of special non-marketable Ontario government debentures. OMERS assets consisted entirely of similar special non-marketable Ontario government debentures prior to October 1975. At that time the fund began investing some of its assets in public markets under the normal rules for pension plan investments; but the majority of its assets are still accounted for by special non-marketable Ontario government debentures. Investment of public sector plans is discussed in detail in Volume VI.

Timing and investment philosophy will have various effects on investment performance, but the investment regulations are sufficiently broad to permit a range of approaches. The rates of return on the funds are crucial, since a poor investment return will mean increased contributions or reduced benefits. Therefore a concern for the buildup of pension assets through good investment performance should be commensurate with a concern for increasing pension liabilities.

## CONCLUSION

One of the prime purposes of the Pension Benefits Act is to secure the pension promise by controlling the setting aside and investment of pension plan monies. The limiting factor for the amount of regulation required to achieve this purpose has always been that pension plans are entered into voluntarily by the employer and may be wound up voluntarily. That limitation is still relevant. However in the last fifteen years pension fund assets have grown tremendously. So too has the value of the pension promises grown, with improved wage rates and with final pay plans in an inflationary climate. As costs begin to mount there is likely to be increased pressure on business enterprises; and they will be forced to seek ways of reducing costs in every area possible, which may include pension plans. We see this climate as a potentially dangerous one for the security of pension plans if pressure from business for less stringent funding requirements - longer amortization periods, and pay-as-you-go adjustments - is not resisted. Therefore the Commission has no hesitation in recommending measures which it believes are necessary now to ensure pension security in the future. It is better to have a weakly funded plan wound up now than to permit employees to rely on the promise and to be disappointed, and perhaps seriously prejudiced, in retirement.



## RECOMMENDATIONS

### Actuarial Funding Methods

That the Pension Benefits Act or its regulations be amended to limit the choice of actuarial funding methods (as defined in the Appendix to Chapter 9) to the following:

- Accrued Benefit - unprojected
- Accrued Benefit - projected
- Level Premium - constant dollar
- Level Premium - constant per cent of salary, entry age normal
- Level Premium - constant per cent of salary, attained age normal

and that the Aggregate Funding method and all other methods except the foregoing be prohibited immediately for all new plans and be phased out within a reasonable time for existing plans.

That the Pension Commission of Ontario designate the plan types for which each of the permitted funding methods is appropriate.

### Actuarial Valuations

That the Pension Commission of Ontario establish without delay guidelines for the choice of actuarial assumptions by the actuary for a pension plan, directed to:

- a) the appropriateness of the choice of actuarial assumptions and their internal consistency;
- b) the incorporation of actual plan experience, where suitable, into the construction of tables for mortality and turnover rates;
- c) the identification of the inflation rate and other elements making up the salary scale and interest rate assumptions and requiring internal consistency.

That the Pension Benefits Act or its regulations be amended to require that all actuarial valuations (except for certain plans in the public sector) be filed on a triennial basis within six months of the fiscal



year end of the plan rather than the present 12 months, and that, if necessary for enforcement, suitable penalties for default be introduced.

That the Pension Benefits Act or its regulations be amended to require that all pension plans in the public sector, including the Hospitals of Ontario Plan, having assets of \$150 million or more, file an actuarial valuation annually with the Pension Commission of Ontario within nine months of the fiscal year end of the plan.

That the Pension Benefits Act or its regulations be amended to require actuarial reporting in compliance with guidelines set by the Pension Commission of Ontario with such guidelines to take precedence over the standard now enunciated in Section 4(b)(1) of the regulation.

#### Valuation of Assets

That the Pension Benefits Act or its regulations or its guidelines be amended to permit the use of capitalized values for valuing fixed income securities only when the following conditions apply:

- (i) the securities are high quality and low risk;
- (ii) liquidity requirements of the fund permit the holding of such securities to maturity;
- (iii) those securities held in the fund bearing interest at a rate below the actuarial assumed rate be written down in the same manner as those written up.

#### Solvency Requirements

That the existing amortization periods now available under the Pension Benefits Act of 15 years for initial unfunded liabilities and 5 years for experience deficiencies remain unchanged.

That the "test valuation" permitted under Regulation 4a. of the Pension Benefits Act allowing the notional conversion of an experience deficiency to an initial unfunded liability for the purpose of determining the amortization period for the liability, be phased out by prohibiting its use for actuarial valuations for periods ending after the 30th of June, 1982, and any experience deficiencies deemed to be initial unfunded actuarial liabilities under the test valuation in the past or the future up to June 30, 1982 valuations must be liquidated in accordance with the current rule, i.e., by an immediate lump sum payment or by equal annual payments over not more than 15 years from the valuation date as of which they were discovered, and all other experience deficiencies must be liquidated by an immediate lump sum payment or by equal annual payments over not more than 5 years from the valuation date as of which they were discovered.

That the principle of applying the provisions of the Pension Benefits Act to all employment pension plans in Ontario, whether in the public sector or the private sector, continue, and in particular that there be no additions to the initial unfunded liabilities on which interest only is payable, permitted to the Province of Ontario for liabilities at January 1, 1965 by Regulation 2(13) made under the Pension Benefits Act, except as recommended for the Legislative Assembly Retirement Act plan.

That for plans using a flat benefit design and such other plans as the Pension Commission of Ontario may designate from time to time, there be such conditions for the making of plan improvements and other changes resulting in initial unfunded liabilities, as may be determined by regulation made under the Pension Benefits Act, in order to ensure adequate funding under the plan for benefits promised from time to time.

#### Plan Termination

That the Pension Benefits Act be amended to provide that meaningful disclosure be made to all members of a pension plan individually, advising that in the event of a plan termination, whether voluntary or not, those benefits which have been promised but which are funded by payments into the future may only be payable to the extent they have been funded at the date of plan termination.

That the Pension Benefits Act be amended to require that upon wind-up of an employment pension plan, those persons who have met the conditions for normal retirement, or who have taken or are eligible for early retirement under the plan at least six months before the date of wind-up and are in receipt of or eligible to receive pension payments, or who are in receipt of a permanent disability pension under the plan shall receive first priority for all basic pension benefits payable to them at the date of such retirement, whether or not these have been fully funded, to the extent of the assets of the plan. If the assets of the plan are not sufficient, these persons shall share rateably in the available assets. All other benefits, including any post-retirement benefit improvements, shall be payable only to the extent funded and shall be subject to the terms of the pension plan and the requirements of the Pension Benefits Act as they apply to all plan members.

That except for the special protection to be provided under the preceding recommendation, priorities among members on pension plan wind-up be determined by the provisions of the pension plan, and where the pension plan does not so provide, then by the requirements of the Pension Benefits Act which should be amended to state clearly the following classes of priority, each member of the class to receive the entitlements stipulated before any allocation to the next following class, the members of classes to share rateably:

- a) statutory deferred life annuitants, active and terminated; pension benefits to the extent funded;
- b) members vested under the plan provisions, pension benefits to the extent funded; non-vested employees, to the extent of required contributions;
- c) members to the extent of their additional voluntary contributions;
- d) members having other pension benefits to the extent funded;
- e) members having any other benefits: e.g., bridging supplements if not pre-funded; escalated adjustments if not pre-funded.

That the Pension Benefits Act be amended to create a statutory lien for monies deemed to be held in trust by employers under Section 23a) of the Act.

That the Pension Benefits Act be amended to create a right in the Pension Commission of Ontario to intervene on behalf of plan members, where the employer sponsor of the plan has become insolvent, and to enforce the statutory lien to obtain payment into the plan of monies deemed to be held in trust for the benefit of the plan members.

To the extent that such steps in amending the Pension Benefits Act by the Government of Ontario are determined to be bankruptcy legislation and therefore beyond the legislative powers of the provinces, that the Government of Ontario take steps to persuade the federal government to create a protected classification under federal bankruptcy legislation to protect,

- a) employee contributions which have been deducted and not remitted;
- b) employer contributions payable to the date of bankruptcy or insolvency.

That the Pension Benefits Act or its regulations be amended to require:

- a) in the case of money-purchase plans, that employer contributions be due and payable at the same time now provided for employee contributions;
- b) in the case of defined benefit plans that employer contributions be due and payable in four equal instalments to be made within 30 days of the end of each quarter of the plan year.

That no steps be taken at this time to institute plan termination insurance or other third party guaranty of benefits promised under an employment pension plan.

That the administration of employment pension plans under the Pension Benefits Act have as one of its dominant goals the financial protection of benefits promised to plan members with the emphasis on the degree of protection to be increased if the Commission's proposed mandatory plan



is not adopted and if membership in a contributory pension plan is not made voluntary.

#### Funding Post-Retirement Adjustments

That the Pension Benefits Act or its regulations be amended to require that all post-retirement adjustments, whether or not linked in some fashion to changes in the Consumer Price Index and which are provided for in the pension plan document or out of any supplementary or other fund created for that purpose, be funded on the same basis as provided in the act for basic benefits under the pension plan, that such requirement be phased in effective for existing plans requiring actuarial evaluation from and after June 30, 1982 and that it apply immediately to new plans. Any unfunded actuarial liabilities created by this change may be treated as initial unfunded liabilities and be amortized over 15 years with annual payments to be not less than the annual payout in respect of such adjustments.

## NOTES

- (1) British Columbia, Prince Edward Island, Newfoundland, and New Brunswick.
- (2) Laurence E. Coward, Mercer Handbook of Canadian Pension and Welfare Plans, Sixth Edition, 1977; Toronto, CCH Canadian Limited; pp. 69-70.
- (3) Pension Benefits Act, R.S.O. 1970, c. 342, s. 28(d).
- (4) R.R.O. 1970, Reg. 654, s. 7.
- (5) Ibid., s. 1(d).
- (6) Ibid., s. 1(g).
- (7) Ibid., s. 1(f).
- (8) Ibid., s. 1(c).
- (9) Ibid., s. 1(h) and Section 2 deals with the scheduling of payments into a plan.
- (10) Pension Benefits Act, s. 22(1)(a).
- (11) Ibid., s. 10(1)(c).
- (12) R.R.O. 1970, Reg. 654, s. 11(1)
- (13) On wind-up all employees are protected to the extent of the value of their own contributions as far as possible.
- (14) Reg. 654, s. 5 and s. 1(b).
- (15) T. Ross Archibald, F.C.A., Accounting for Pension Costs and Liabilities (A Reconciliation of Accounting and Actuarial Practice), a CICA research study (unpublished).
- (16) The Pension Commission of Ontario directive issued March 9, 1966 on Frozen Initial Liability Valuations, (which include aggregate funding and variations on other level premium systems) provides that if the normal contribution rate (as a percentage of salary) has fallen between two actuarial valuations, it will be presumed that no experience deficiency has arisen. If, however, the normal contribution rate has risen, the actuary must use one of the procedures, outlined in the directive to determine if an experience deficiency has arisen and the amount thereof. The usual 5-year rule applies to an experience deficiency so determined.
- (17) Reg. 654, s. 4b.(1).
- (18) American Academy of Actuaries, "Pension Plan Recommendations and Interpretations," s. 4.
- (19) CICA bulletin, 3460.28
- (20) Eltra Corporation, Prestolite Electrical Division, Point Edward, Ontario.

- (21) Reg. 654, s. 11(6).
- (22) Brief 1, Canadian Life Insurance Association, p. 35.
- (23) Reg. 654, s. 2a.

## LIST OF TABLES

Table 1 - Leading Actuarial Funding Methods in Use in Ontario	99
Table 2 - Amortization of Experience Deficiency Liability of \$100,000 by Payments Annually in Advance	128
Table 3 - Amortization of Initial Unfunded Liability of \$100,000 by Payments Annually in Advance	129
Table 4 - Unfunded Actuarial Liability by Plan Type and Actuarial Method	131
Table 5 - Funded Status of 943 Trusteed Pension Plans in Ontario, 1971-73	135
Table 6 - Unfunded Actuarial Liability by Plan Type, 943 Trusteed Pension Plans in Ontario	136
Table 7 - Funding Status of Six Major Public Sector Employment Pension Plans in Ontario	138



## APPENDIX TO CHAPTER 9: FUNDING EMPLOYMENT PENSIONS

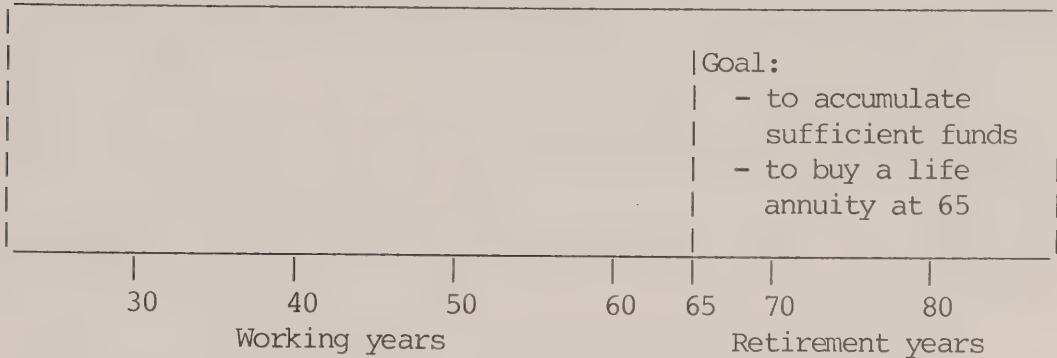
Basic Funding Concepts	173
Actuarial Assumptions	175
Decremental Assumptions	176
Economic Assumptions	179
Social Characteristics	183
General Principles	184
Actuarial Funding Methods	186
Flat Benefit Plan	187
Career Average Plan	188
Final Pay Plan	191
Understanding the Different Actuarial Funding Methods	191
Accrued Benefit - unprojectd	193
Accrued Benefit - projected	196
Level Premium - constant dollar	198
Level Premium - constant per cent of salary, entry age normal	199
Level Premium - constant per cent of salary, attained age normal	202
Aggregate Funding	202
Notes	206
List of Tables	207

BASIC FUNDING CONCEPTS

The essential actuarial task involved in the funding of employment pension plans has been described as follows by T. Ross Archibald:

"The primary goal of the actuary is to make certain that the pension plan accumulates sufficient funds over the working years in order to provide the pension benefits promised to an employee in his retirement years. The actuary views his task in the manner depicted in Table 1. In general, one can think of the task as accumulating sufficient dollars over the working years to buy a life annuity for the retiring employee at 65 years of age or at whatever retirement date is specified by the company pension plan.

Table 1  
Essential Actuarial Task



Example: pension agreement commits company to pay \$17,500 a year for life from age 65.		
Funds required at age 65 to produce a \$1 per year life annuity at 6% interest(a)	Annual pension benefit	Require funds for a payment of
\$9.23	\$17,500	\$161,500

a Based on 1971 group annuity table and 6 per cent interest.  
Source T. Ross Archibald, F.C.A., Pension Costs and Liabilities, Exhibit II-1.

"Thus an individual has a working career with a company spanning any number of years up to retirement, at which point in time he leaves his employer and in his retirement years collects the promised benefits. In the example, we assume an employee, age 30, is hired today. After working 35 years, he retires at age 65 and becomes eligible for a pension of \$17,500 a year for life. The mechanical problem for the actuary then is to determine how much it would cost to buy a life annuity for those pension benefits at age

65. The first step is to refer to the actuarial tables to find the cost of a \$1.00 life annuity for an individual at 65, given an interest rate and mortality assumptions. In this case, the cost of a \$1.00 per year life annuity at 65 at 6 per cent interest and mortality according to the 1971 Group Annuity Mortality Table, is \$9.23.

"Multiplying the \$9.23 times the annual pension benefit of \$17,500 yields the amount necessary to buy a life annuity, or \$161,500. Thus, the essential actuarial task translates itself in this example to one of accumulating sufficient funds over the next 35 years until retirement in order to be able to be in a position to purchase the life annuity, or to hold the equivalent amount necessary to meet the pension benefit obligations to the employee when they fall due.

"It is important to point out that there is no necessity to purchase a life annuity at 65 in order to assure proper funding. As a matter of fact, this is a rare event in large companies. In practice, in a large established pension plan, there are contributions from employers and employees and earnings of the plan as cash inflows, which are counter-balanced by benefits paid out of the plan. The real problem for the actuary is to make certain that there are sufficient funds available in the plan at retirement to pay those benefits on a monthly basis as they mature. Nevertheless, it seems easier to conceptualize the problem from the point of view of having to accumulate sufficient funds over the working years in order to buy a life annuity to provide the pension benefit obligations during the retirement years."(1)

In order to accomplish the essential actuarial task of accumulating sufficient funds to pay for promised pensions, a wide variety of assumptions involving individual judgment are used to determine the annual payment required. The amount of the annual payment for the promised benefits will also depend on the methods (actuarial funding methods) of setting aside the funds for the various types of pension plans. Actuaries can use the same actuarial assumptions with the same employment pension plan and membership and produce widely different answers for overall costs and liabilities because they are using different actuarial funding methods. The methods are designed to achieve the same result in the long run, i.e., accumulate the necessary pension fund by the employee's age 65. However, the patterns of setting aside monies can be very different indeed.

With each actuarial funding method a "normal contribution" (current service cost) is calculated each year as the amount to be paid under the terms of the employment pension plan with respect to that particular year's service. In addition, there may be other pension liabilities collectively referred to as "supplemental liability," which must also be funded, and their treatment can give rise to further sig-

nificant differences in funding patterns for a particular employment pension plan.

Supplemental liability is either "initial unfunded liability" arising from

- granting of pension credits for service rendered prior to the establishment of the plan;
- using a normal contribution which is inadequate for the older employees who are in service when the plan is established;
- liberalization (improvement) of plan benefits;
- the changing of an actuarial assumption;

or an "experience deficiency" arising from deviation of plan's experience from actuarial assumptions, for example, because of lower than anticipated investment performance or pensioners living longer.

Unlike the normal contribution which under the Pension Benefits Act must be paid each year, supplemental liabilities may be paid over time. Initial unfunded liabilities may be paid over 15 years and experience deficiencies may be paid over 5 years. Such liabilities may of course be paid immediately or over any period shorter than the legal maximum.

Sometimes there is no separate determination of the amount of this liability and its funding is provided for simply as a part of the normal contribution under an actuarial funding method called Aggregate Funding. In most instances there is a separate determination of the amount of the supplemental liability. Its amount varies with the particular actuarial funding method used and a fair amount of latitude and discretion is open to the employer in funding the liability.

#### ACTUARIAL ASSUMPTIONS

Because monies are set aside today to pay future pensions, the actuary works with a large number of variables which are considered over a long time frame and which are collectively referred to as actuarial assumptions. The actuary develops a set of assumptions having regard to employee data and considering the plan as a going concern to determine the amount of pension promised and how the funds will be set aside. These assumptions include the decrements used to estimate the number of employees who will eventually qualify for a pension or other benefit, economic conditions including salary and interest rates, and social characteristics such as retirement age and marital status.



## Decremental Assumptions

These assumptions determine the probability that an employee on whose behalf pension benefits are being credited will continue in service to retirement age and thus actually collect a pension. The decremental factors working against obtaining a pension are death, turnover (termination of employment whether voluntary or involuntary), and disability. Separate assumptions must be developed for each of these, as in the examples set out in Table 2.

### Mortality

Mortality rates are used to estimate how many employees will live until retirement and, as well, how long the employees will draw their pensions once they have retired.

Only in the largest employment pension plans is the number of deaths sufficient to be a reliable guide to the mortality of the group, in view of which one of perhaps a dozen standard mortality tables is nearly always used. Mortality studies are published frequently by the professional actuarial organizations and new standard tables are constructed from time to time. A study by the Pension Commission of Ontario of actuarial valuation assumptions as of October 31, 1978 for 150 pension plans in its jurisdiction which had 1,000 or more active members provides information about tables in use on these 150 major plans.

The most commonly used table was the Group Annuity table for 1951 known as Ga-51 with a projection or adjustment of mortality rates to allow for improvements in mortality since the table was prepared. Annuity tables for 1949, 1951, and 1971 (that is, the Ga-1949, Ga-51, and Ga-71 tables) were used without adjustment for several other pension plans in the study. All the tables were derived from statistics of annuitants as opposed to insured lives, except that in two cases the 1947 Standard Table was employed with adjustments.

While some of these mortality tables may seem out of date, they are not so if they are projected according to the scale of mortality improvements published with the tables. Usually the tables have a built-in reduction in mortality rates to allow for mortality improvement from the date the statistics were collected to the date the table was published, as well as a projection scale which enables the actuary to allow for improvements beyond the date the table was published, at one or more levels. Where the projection scale is not available or is not used, the adjustment to allow for mortality improvement is usually made by the actuary by an age reduction; for example, by assuming that the mortality of those aged 65 in 1990 will be equal to the mortality of those aged 64 according to the table.

Table 2  
Major Decremental Assumptions and Specimen Rates

Item	Major influencing factors	Survival probabilities at various ages	
<u>Living to age 65(a)</u>			
Mortality	Age, sex	At age 30	.81
		31	.82
		32	.82
		33	.82
		34	.82
		At age 35	.82
		At age 40	.82
		At age 45	.83
		At age 60	.92
<u>Remaining in service to 65(b)</u>			
Turnover	Age, sex, occupation, length of service	From age 30	.39
		31	.44
		32	.49
		33	.53
		34	.58
		From age 35	.62
		From age 40	.81
		From age 45	.93
		From age 60	1.00
<u>Avoidance of disability to age 65(c)</u>			
Disability	Age, sex, occupation	At age 30	.86
		31	.86
		32	.86
		33	.86
		34	.86
		At age 35	.86
		At age 40	.86
		At age 45	.87
At age 60	.95		

- Sources
- a) 1971 Group Annuity Mortality Table (Males).
  - b) Ontario Medium Termination Rates, The Second Report of the Ontario Committee on Portable Pensions - 1961, zero from age 50.
  - c) Transactions, Society of Actuaries, 1977, reports of mortality and morbidity.

In this total process the actuary uses judgment in choosing an assumption considered appropriate to the particular employee group. It is estimated that the ranges implicit within the various mortality tables are such that this choice will probably affect a plan's overall costs and thus the contributions required to fund the plan by no more than about 10 per cent, half of the effect being due to mortality before retirement and the other half due to mortality after retirement.

Obviously, mortality is influenced by both the age and the sex of the particular employee. It is a fact that in our society women live longer than do men. For this reason an annuity payable to a woman from age 65 costs about 10 per cent more than a similar annuity for a man.

#### Turnover

Turnover rates are used to estimate how many employees will leave the company before becoming entitled to pension. They are sometimes referred to as rates of termination or withdrawal.

While the actuary customarily adopts one of a rather limited number of standard mortality tables instead of developing a mortality table for the particular group of employees in the pension plan, such a procedure is less usual with withdrawal or turnover rates. The reason is that turnover varies from industry to industry, from employer to employer, from one class of employee to another and from year to year depending on economic conditions. Hence, it is impossible to develop a single turnover table of wide applicability.

Nevertheless, a number of tables showing the probability of leaving employment other than by death or retirement have been published, usually giving a range of rates, for instance the low, medium, and high termination rates in the 1961 Report of the Ontario Committee on Portable Pensions. These are "select" rates in that the probability varies by length of service as well as by age on the premise that a short service employee is much more likely to change jobs than is an employee who has been with the employer for many years. Turnover tables with select rates have also been published in the transactions of the Society of Actuaries (U.S.) and elsewhere, including termination rates under the U.S. Railroad Retirement System which are sometimes found to be appropriate for other groups.

Select rates are not used in our illustration in Table 2. However, in Chapter 8 of this report, a study has been made of the degree to which pensions are preserved for employees subject to various levels of turnover under employment pension plans with different vesting provisions. In that study five sets of select termination rates were examined including high, medium, and low terminations derived from the statistics of large employers in Canada and the termination rates for males and females in the Ontario public service. This provides a good example of the wide range of rates that are commonly experienced.

Turnover rates are usually the most important of the decremental forces in their impact on the number who reach retirement age. The sensitivity of this assumption is demonstrated when one notes that in Table 2 at age 30 there is only a .39 probability of remaining in service to 65, but this increases over the years so that at age 45 there is a .93 probability and after age 60, the table cited assumes there is no chance an employee will terminate employment before retirement age.

## Disability

Disability rates are used to estimate how many pension plan members will not receive regular retirement benefits and, by corollary, how many will receive disability benefits if these are available under the plan.

The disability factor is approximately at the same level of sensitivity as mortality. However, this could be substantially influenced by the occupation of the particular employee group, its sex, composition, the manner in which disability is defined, interpreted and administered (strictly or loosely), and even current rates of unemployment.

If the pension plan provides substantial disability benefits, assumptions may be necessary as to the chance of disability at each age and the mortality applicable to disabled lives. Tables developed by life insurance companies are often used with modifications by the actuary for this purpose.

## Economic Assumptions

These actuarial cost factors are based upon broad economic forces and reflect predictions of future economic behaviour. The principal ones are salary scales and interest rates, for which typical ranges are set out in Table 3.

Table 3  
Major Economic Assumptions

Item	Components	Typical assumption ranges (Per cent)
Salary		3 to 7
	Merit by age	4.5 to 0
	Productivity	1 to 2
	Inflation	2 to 5
Interest		4 to 7
	Pure rate	2 to 3
	Inflation	2 to 5



## Salary Scales

Salary scales, that is, rates of increases in salary or wages, are needed for the many career average plans which use an actuarial funding method calling for future earnings projections. There also appears to be general agreement among actuaries that salary scales are needed for all final pay plans except in the most unusual circumstances. In fact, this is now a requirement in the recent guidelines of the Canadian Institute of Actuaries on Valuation of Pension Plans.

The salary scale is intended to reflect the anticipated long-run effect on earnings of merit increases, productivity gains, and adjustments for inflation. Typically, the overall rate of growth is assumed to fall into the 3 to 7 per cent range, with the components broken down as shown in Table 3.

Merit increases are generally higher early in an employee's career than later on. For example, they may be viewed as starting at 4 to 4.5 per cent annually, and declining with increasing age to zero, so that the overall average annual compound rate is of the order of 2 per cent. The productivity assumption is not an estimate of total future productivity gains in the Canadian economy but an estimate of the part of those gains that will find its way into earnings of the particular employee group. This assumption commonly ranges between 1 and 2 per cent. Inflation estimates typically range between 2 and 5 per cent annually, recognizing that this is for the long term.

Based on the foregoing, it would seem unrealistic to be using salary scales of less than 4 to 4-1/2 per cent; but a significant number of plans are doing so. The previously mentioned study by the Pension Commission of Ontario identified 68 plans using salary scales. The rates of salary increase assumptions in the last actuarial valuation prior to 1978 were available for 64 of these plans, as follows:

Salary scale (Per cent)	Number of plans	Per cent of plans
1 up to 3	8	12
3 up to 4	18	28
4 up to 5	19	30
5 up to 6	14	22
6 up to 7	5	8

The rules of Revenue Canada may have affected the choice of salary scale. These rules are designed to protect tax revenues by preventing employers from claiming unduly large deductions for pension contributions. The department's Information Circular 72-13R6 provides that a

salary scale may be used provided it is reasonably consistent with the long-term interest assumption and that normally the salary scale should not exceed the interest rate. Before February 2, 1979, the department's rule was even stricter and the interest rate had to exceed the salary scale by 1 per cent or more. It is likely that the differences shown by the statistics would be less marked were it not for these rulings.

## Interest Rate

Interest rate assumptions are often broken into components by the actuaries. The pure or real rate of interest is normally assumed to range between 2 and 3 per cent annually as shown by past history. To illustrate, even though mortgage interest rates are 14 per cent and more, lenders do not expect to obtain a real return of 14 per cent on a mortgage. Traditionally in the money market they should get 3 per cent in terms of purchasing power, but it is necessary for the lenders to make adjustments for the rate of inflation that they anticipate.

Looking at the growth of interest rates and wages over the long term, the following table shows the annual averages over several ten-year periods:

	Consumer price index	Industrial composite wage index	Long-term Canada bond yields	Real growth in	
				Wages	Canada bonds
	(Per cent)				
1929-1938	-1.58	.21	4.14	1.82	5.81
1939-1948	4.29	5.55	2.97	1.21	-1.27
1949-1958	2.58	5.79	3.38	3.14	.78
1959-1968	2.17	4.56	5.30	2.34	3.06
1969-1978	6.89	9.21	8.11	2.17	1.13

Thus, real wages have grown at roughly 2 per cent per annum over the whole period. The real return on long-term Government of Canada bonds has been much more variable, but a rate of 2 per cent is indicated. However, pension funds are not all invested in Canada bonds.

McLeod Young Weir's 40 Bond Index is a better index of pension fund investment returns than the long-term Canada bond yield, and usually produces between 1/2 and 1 per cent higher yield. The 40 Bond Index is not used in the table as the series does not go back to 1929.

These figures support the view that real wages grow at about 2 per cent a year and the real return on investments is 2 to 3 per cent.

Revenue Canada takes the view that the actuary should in some circumstances assume that interest rates will exceed increases in the Consumer Price Index by at least 2 per cent per annum. The department's

Information Circular 72-13R6 requires that when pensions are indexed with the Consumer Price Index, the assumptions on inflation and interest must be consistent and "normally the latter must exceed the former by at least two percentage points." In other words, the real return on investments is assumed to be 2 per cent or more.

The study by the Pension Commission of Ontario of the last actuarial valuation of large plans filed with the Commission before October 31, 1978 provides information about current practices on interest rates, as follows:

Interest rates (Per cent)	Number of plans	Per cent of plans
4 up to 4-1/2	5	3
4-1/2 up to 5	21	14
5 up to 5-1/2	44	29
5-1/2 up to 6	30	20
6 up to 6-1/2	34	23
6-1/2 up to 7	7	5
7	9	6

#### Varying Interest Rates

Where it seems likely that current conditions applying to one of the assumptions will not continue for long, it is possible to use rates that change with time, sometimes called select rates. For example, a judgment might be made that the interest assumption should be at 7 per cent for the next ten years and 5 per cent thereafter. Only one plan out of the 150 in the Pension Commission's study used select rates, using 8-1/2 per cent for the first 3 years after the valuation date and 5-1/2 per cent thereafter.

There is a more common way in which two interest rates may be used in one set of funding calculations. Instead of assuming that interest rates may fall at some particular point in time in the future, it may be assumed that one rate is applicable to the pension fund assets relating to former employees who are already retired and another rate to the assets related to active employees, on the grounds that different time periods are involved. Since the average lifetime is likely to be 10 to 15 years for pensioners but 30 or more years for the active employees, possibly in today's economic climate a higher interest rate could be assumed for pensioners' assets as opposed to those for active members. Indeed the rate for present pensioners might be close to that adopted by insurance companies in making annuity quotations, the rate for active members being on a much more conservative basis because of the longer time frame.



Eight of the 150 plans in the Pension Commission's study varied their interest rate along these lines, as follows:

- 4-1/2 per cent for active, 4 per cent for retired
- 5 per cent for active, 6 per cent for retired
- 5 per cent for active, 6 per cent for retired
- 5 per cent for active, 8 per cent for retired
- 5-1/2 per cent for active, 3-1/2 per cent for retired
- 6-1/2 per cent for active, 5-1/2 per cent for retired
- 7 per cent for active, 5 per cent for retired
- 7 per cent for active, 5-1/2 per cent for retired

It is interesting that only 3 of the 8 used a higher interest rate for the assets related to retirees versus those for active employees. The other 5 did the reverse, using a lower rate for the retirees, which might be appropriate if the employer had chosen to apply excess interest on those assets to provide increases in pension payments.

#### Canada Pension Plan Ceiling

In an employment pension plan integrated with the Canada Pension Plan an assumption must usually be made as to the Canada Pension Plan YMPE (Year's Maximum Pensionable Earnings) in future years. Under the present Canada Pension Plan provisions, the YMPE will increase at 12-1/2 per cent per annum until it catches up with the Average Industrial Wage, which it will follow thereafter. Hence the YMPE after a few years will depend on the rate of inflation and the national growth in real wages. It is common to assume that the YMPE will increase 12-1/2 per cent per annum for a few years, say until 1985, and will thereafter increase in accordance with the salary scale assumption for the individual company's plan. However, this is not always the case.

#### Social Characteristics

##### Retirement Ages

It is necessary to assume either an average retirement age or a series of probabilities of retirement at ages between the earliest retirement age and normal retirement age under the plan. Where the pension on early retirement is the actuarial equivalent of the pension at normal retirement age, it may be acceptable to assume that all employees retire at the normal age. Many pension plans, however, do not reduce the pension on early retirement by as much as would be required on an actuarial basis, so that early retirement may involve extra cost to the fund. In these cases the plan would be undervalued if all employees were assumed to retire at the normal retirement age. The experience of the particular employer will assist in making a retirement age assumption, and the employer's opinion should be sought by the actuary.



If the pension plan permits employees to retire on full pension after a period of service, say "30 and out," it could be argued that retirement should be assumed for each individual at the age at which full pension is first available to him. However this is not necessarily the most realistic actuarial assumption nor would it necessarily produce the highest liability. Particularly in times of inflation, employees may have a strong financial incentive not to retire at the earliest age, because postponement of retirement will not only give the employee an additional year of credited service (unless of course the employee has achieved maximum service already) but will also allow the pension to be calculated on a higher earnings base. The higher earnings base comes into effect automatically in final pay plans; in career average and flat benefit plans a similar incentive to postpone retirement is often present since postponement allows the employee to receive the advantage of further pension upgrades.

The retirement assumption should therefore be based on the actual pattern of retirement of the plan members and the likelihood of changes in this pattern. Retirement ages may be affected by the employer's personnel policies. Account should also be taken of the removal of discrimination as to retirement age between males and females and the current pressure to abolish mandatory retirement.

More than half (52 per cent) of the 150 pension plans in the Pension Commission of Ontario study assumed retirement at age 65 and only six (4 per cent) had a higher age. In 25 plans (17 per cent) a lower age was assumed, and in 41 (27 per cent) a graduated scale of retirement probabilities was used, which implies that some of the employees were assumed to retire before age 65.

#### Family Statistics

If the plan provides survivor benefits, assumptions will be needed to enable these benefits to be valued. Assumptions will include the proportion married, the relative ages of husbands and wives (wives are commonly assumed to be three years younger than their husbands on the average), and in some cases the number and ages of children and rates of remarriage of widows and widowers.

#### General Principles

Mention was made of the importance of a correlation between interest rates and salary scales and specifically of looking for the same inflation component in each. In fact, actuaries tend to regard all the necessary assumptions as an interrelated package and believe that the relationships between the assumptions may be as important as their absolute levels. Their requirement is that the assumptions - particularly economic assumptions - should be internally consistent. Not only should individual assumptions be defensible but the assumptions as a whole should be reasonable.

Another principle is that the assumptions should be appropriate to the particular work-force and the particular type of pension plan. Some occupations have traditionally had a high rate of labour turnover which is likely to persist in the future, while in others stable employment is the rule. In some occupations, employees tend to retire early and in others most employees stay until normal or mandatory retirement. Demanding and hazardous occupations often have early retirement ages, for instance firefighters and policemen; but in other cases retirement ages vary for no clear reason. The pattern of salary or wage increases and of promotions to more senior positions also varies from employer to employer. In addition, the terms of the pension plan itself can change the rates of retirement and termination of employment. Accordingly, assumptions should depend on the facts concerning the particular work-force wherever possible, although in the smaller plans the information may not be statistically significant, so that more general tables must be used.

Third, in valuing a pension plan it is considered as a going concern and a long-term view is taken in making the necessary assumptions. The going concern basis assumes that the plan will continue in perpetuity or until every plan member has either terminated employment or retired and all payments due to all such members and their beneficiaries have been paid out in full. In theory all liabilities which may arise in the course of the funding progression will in the long run have been discharged. This basis assumes that the employer will continue the plan and will be in a financial position to make all the required payments into the plan.

The going concern basis is in contrast to a winding-up basis. The winding-up basis acknowledges that the employer may choose to discontinue the plan at any point in time or may become financially unable to make the contributions required under the funding pattern. Then the question is whether at the time of winding-up there are sufficient monies accumulated to pay the promised benefits to the extent they have been earned to that point in time. A winding-up valuation may be needed in some circumstances; for example, if the company is going out of business or being taken over, but generally pension plans are funded on a going concern basis.

A fourth principle involves identification of the group for which valuations are made. Actuarial valuations are prepared on a "closed group" basis with rare exceptions. The "closed group" basis means the costs and liabilities and contributions are worked out for all present plan members only, without taking any account of future entrants to the group. In an ongoing plan, future entrants are generally younger than present staff and require lower contribution rates, so it is usually conservative to ignore them.

An exception to the "closed group" approach is the dynamic or open group valuation which employers sometimes have done to provide

additional information about future costs, funding obligations, and cash flow of the pension fund. Also, social security plans of government are often "valued" using the open group principle.

#### ACTUARIAL FUNDING METHODS

A great variety of actuarial funding methods are possible in theory; while many of them are used in Ontario, six are dominant. The vast majority of employment pension plans in Ontario use these six methods, although this is not readily apparent to the layman because some of the methods are known by several different terms and some of the terms are used interchangeably. Table 4 sets out these six methods by the names under which the Commission has chosen to discuss them in this chapter, the terms by which they are commonly known, and the plan types for which they are commonly used.

Table 4  
Leading Actuarial Funding Methods in Use in Ontario

Name of method	Terms in common usage	Plan types where used		
		Flat benefit	Career average	Final pay
Accrued benefit				
- unprojected	(Single premium, (Unit credit	X	X	
- projected	(Accrued benefit, (Unit benefit			X
Level premium				
- constant dollars	(Level premium	X		
- constant per cent of salary, entry age normal	(Entry age normal, (Entry age level premium		X	X
- constant per cent of salary, attained age normal	(Attained age normal, (Attained age level premium		X	X
Aggregate funding	Aggregate funding		X	X

Funding methods fall into two broad classes: accrued benefit methods and level premium methods. Under the accrued benefit methods, a unit of pension benefit is associated with each year of the employee's service and is paid for or purchased outright by the annual normal contribution. Under level premium methods, the benefits are projected through to retirement and the costs are determined as a level dollar amount or percentage of pay over the total career or remaining career of the employee. Level premium methods are more like instalment payment



plans in that the total cost of the eventual pension to be earned for all years of service, past and future, is first calculated and then equal annual instalments to pay for it are calculated.

To illustrate how very different the results of the various actuarial funding methods are with each of the three different plan types, a series of examples was developed for an individual aged 33 joining a company and its non-contributory employment pension plan which operates under the decremental assumptions set out in our earlier Table 2. Since the key distinguishing feature of the aggregate funding method is that the supplemental liability is zero or arbitrary, this method was omitted from the following comparisons. A later example will assume a supplemental liability, essentially consisting of a liability for past service, so that the contrast in results under aggregate funding may be shown there.

With each actuarial funding method two key values are developed - the normal contribution and the actuarial liability. The normal contribution as described earlier is the amount, on the basis of the actuarial funding method that has been chosen, that should be paid in respect of the current year of service. The actuarial liability is the amount of money that should be on hand for the plan to be fully funded under the Pension Benefits Act by the use of the funding method at a particular point in time. It is the sum of all normal contributions which should have been made to that point and any supplemental liability, reduced by any benefit payments that have been made, all with interest earned thereon and the "benefit of survivorship." (Benefit of survivorship arises because contributions are made for all employees but go to provide pensions only for those who survive to retirement.)

#### Flat Benefit Plan

This plan, in our example, provides a pension of \$500 a year for each year of service. The interest rate assumption is 6 per cent per annum. For an employee starting at age 33 and working to normal retirement age of 65, the pension benefits starting at age 65 will be \$16,000 a year. Values under the two different actuarial funding methods applicable are shown in Table 5 (assuming that no benefit is paid in the event of death, disability, or termination) for each of the first three years of service and at five year intervals thereafter.

The wide difference in the funding patterns is readily apparent. The normal contribution under the Accrued Benefit - unprojected method is \$265 in the first year of service, or 30 per cent of the normal contribution of \$880 under the Level Premium - constant dollar method, then it rises to virtually the same amount at age 44 and by age 64 it is nearly five times as much (\$4,219 vs. \$880).



The total charge against the employer's earnings statement, or overall payments by the employer, varies significantly under the two methods. If we were to add up all the normal contributions over the 32 years they would total \$50,260 under the Accrued Benefit - unprojected method and \$28,160 under the Level Premium - constant dollar method. The difference of course is made up by extra interest earnings in the pension fund under the Level Premium - constant dollar method due to the larger contributions in the early years which build to a larger fund under investment at every age.

The actuarial liability at end of year in Table 5 shows the money which should be in the fund at the end of each year of age under each method so that the plan may be said to be fully funded. Since the Level Premium - constant dollar method consistently calls for a larger fund to be on hand and available to meet pensioners' claims, it is the more conservative method of the two.

Table 5  
Actuarial Funding Methods for Flat Benefit Plans

Age	Accrued benefit - unprojected		Level premium - constant dollars	
	Normal	Actuarial	Normal	Actuarial
	contribution paid at beginning of year	liability at end of year	contribution paid at beginning of year	liability at end of year
	(Dollars)			
33	265	306	880	1,016
34	306	700	880	2,167
35	350	1,191	880	3,454
40	613	5,400	880	11,928
45	956	13,491	880	24,052
50	1,430	27,582	880	41,081
55	2,029	50,388	880	64,230
60	3,001	91,307	880	101,240
64	4,219	147,626	880	147,626
Annual pension				
provided with annuity				
rates at 6 per cent		16,000	16,000	

#### Career Average Plan

This plan in our example provides a pension of 2 per cent of salary for each year of service. The employee's first year salary is \$10,000 which is assumed to increase 5 per cent every year. The interest rate

assumption is 6 per cent per annum. For an employee starting at age 33 and working to normal retirement age of 65, the pension benefits starting at age 65 will be \$15,060 a year. Values under the three different actuarial funding methods applicable are shown in Table 6 (assuming that no benefit is paid in the event of death, disability, or termination, as before) for each of the first three years of service and at five-year intervals thereafter.

The difference in the funding patterns under the Accrued Benefit - unprojected method on the one hand and the two level premium methods on the other is very marked. Under the former, the normal contributions rise very rapidly with age whereas under the latter they represent a level percentage of payroll, although under Level Premium - constant per cent of salary, entry age normal there is an extra contribution in the first fifteen years against the payment of the supplemental liability. This arises from the employee in the example entering the plan at age 33 compared to an assumed entry age of 30 for the plan as a whole.

The contribution under the Accrued Benefit - unprojected method is \$106 in the first year of service, or only some 20 per cent of the payments required under the two level premium methods; it then rises to virtually the same amount as the other two methods at about age 47 and by age 64 it is 3-1/2 to 4 times as much as the other two methods (\$7,659 vs. \$1,892/\$2,255). The changes in terms of per cent of salary are even more dramatic, with Accrued Benefit - unprojected ranging from 1.06 to 16.88 per cent, while Level Premium - constant per cent of salary, entry age normal ranges from 5.42 per cent down to 4.17 per cent and Level Premium - constant per cent of salary, attained age normal remains constant at 4.97 per cent.

The differences between the two level premium methods, namely entry age normal and attained age normal, are much smaller; but of course the difference between the assumed entry age and attained age is only 3 years in our example. The former has a lower normal contribution (4.17 per cent of payroll as against 4.97 per cent of payroll) but has to pay off a supplemental liability. Taking all payments together the entry age normal method pays 9 per cent more in the first year and 16 per cent less after the 15th year.

As for the actuarial liability, the results again differ markedly. The level premium funding methods are seen to be much more conservative than the Accrued Benefit - unprojected method in that they consistently call for much larger funds to be on hand. Of the two level premium methods, entry age normal is the more conservative and requires the largest payments in the early years, yet it would also show by far the largest unpaid or unfunded actuarial liability in those years because of the supplemental liability developed at the outset under this method.

Table 6

## Actuarial Funding Methods for Career Average Plans

Age	Accrued benefit - unprojected			Level premium - constant per cent of salary, entry age normal			Level premium - constant per cent of salary, attained age normal		
	Normal		Actuarial	Normal		Actuarial	Normal		Actuarial
	contribution		liability	contribution(a)		liability	contribution		liability
	Amount	to salary	at end	Amount	Per cent	at end	Amount	Per cent	at end
	Salary	(Dollars)	of year	(Dollars)	to salary	of year	(Dollars)	to salary	of year
32									
33	10,000	106	123	417+125	4.17+1.25	1,286	497	4.97	573
34	10,500	129	287	438+125	4.17+1.19	1,966	522	4.97	1,251
35	11,025	154	500	460+125	4.17+1.13	2,748	548	4.97	2,040
40	14,071	345	2,578	587+125	4.17+ .89	3,636	699	4.97	7,798
45	17,959	686	7,353	749+125	4.17+ .70	9,816	892	4.97	17,210
50	22,920	1,311	17,243	956	4.17	19,472	1,139	4.97	31,912
55	29,253	2,375	36,306	1,220	4.17	34,205	1,454	4.97	53,824
60	37,335	4,482	76,179	1,557	4.17	55,782	1,855	4.97	90,835
64	45,380	7,659	138,950	1,892	4.17	92,024	2,255	4.97	138,950
Annual pension provided									
with annuity rates at									
6 per cent									
			15,060			15,060			15,060

a A normal entry age of 30 was assumed, with the result that in the employee's first year of service a Supplemental Liability is developed. The contribution for ages 33 to 47 inclusive includes \$125 a year for amortization of this Supplemental Liability over the maximum allowable period of 15 years.



## Final Pay Plan

This plan, in our example, provides a pension of 1 per cent of average annual salary for the last 5 years times years of service. The employee's first year salary is \$10,000 which is assumed to increase 5 per cent every year. The interest rate assumption is 6 per cent per annum. For an employee starting at age 33 and working to retirement age of 65, the pension benefits starting at age 65 will be \$13,203 a year. Values under the three different actuarial funding methods applicable are shown in Table 7 (assuming that no benefit is paid in the event of death, disability, or termination, as before) for each of the first three years of service, each of the last five years of service, and at five year intervals in between.

The Accrued Benefit method used for this plan is on the projected basis rather than the unprojected basis used in the Career Average Plan. The variance from the level premium methods is therefore not as great in this plan as it was in the Career Average Plan. Nevertheless, the normal contribution here starts out at 2.19 per cent of salary at age 33, is approximately the same as the two level premium methods at age 45 at 4.39 per cent, and then ranges up to 7.67 per cent at age 64 whereas the level premium methods stay flat at 3.86 per cent (plus amortization payments) and 4.36 per cent respectively.

Again the most conservative of the three methods is Level Premium - constant per cent of salary, entry age normal.

## UNDERSTANDING THE DIFFERENT ACTUARIAL FUNDING METHODS

To understand the reasons for the variety of actuarial funding methods and the pros and cons of each, the Commission analyzed each of the dominant methods using the previous examples to understand how the actuaries calculate the normal contribution and the actuarial liability under these methods.

Our examples of actuarial calculations are of a highly simplified, basic type, ignoring such complicating factors as the possibility of obtaining disability benefits or retiring early, guaranteed terms at retirement, surviving spouse provisions, terminating employment with partially vested benefits, etc. They are not intended in any way to convey the full complexity of the actuarial task.

The use of one individual is not entirely appropriate either. The accrued benefit funding methods develop contribution amounts for individual employees and sum them but the level premium methods usually sum the individuals' actuarial factors and develop contribution amounts only on a group or collective basis. Also, the situation or pattern of funding for an individual will rarely be indicative of the overall



Table 7

Actuarial Funding Methods for Final Pay Plans

Age	Accrued benefit - projected				Level premium - constant per cent of salary, entry age normal				Level premium - constant per cent of salary, attained age normal					
	Normal contribution		Actuarial liability at end of year		Normal contribution(a)		Actuarial liability at end of year		Normal contribution		Actuarial liability at end of year			
	Per cent to salary		Per cent to salary		Per cent to salary		Per cent to salary		Per cent to salary		Per cent to salary			
	Salary	Amount	(Dollars)	Amount	(Dollars)	Salary	Amount	(Dollars)	Salary	Amount	(Dollars)	Salary	Amount	(Dollars)
32								801						
33	10,000	219	2.19	253	386+78	3.86+.78	1,370	436	4.36	503				
34	10,500	253	2.41	578	405+78	3.86+.78	2,029	457	4.36	1,098				
35	11,025	289	2.62	982	425+78	3.86+.71	2,783	480	4.36	1,789				
40	14,071	506	3.60	4,456	543+78	3.86+.55	8,094	613	4.36	6,838				
45	17,959	789	4.39	11,133	698+78	3.86+.43	16,498	782	4.36	15,099				
50	22,920	1,180	5.15	22,761	884	3.86	29,406	998	4.36	27,979				
55	29,253	1,675	5.73	41,580	1,129	3.86	48,408	1,274	4.36	47,189				
60	37,335	2,476	6.63	75,345	1,440	3.86	80,377	1,626	4.36	79,637				
61	39,201	2,691	6.86	84,903	1,512	3.86	89,095	1,708	4.36	88,503				
62	41,161	2,928	7.11	95,685	1,588	3.86	98,793	1,793	4.36	98,371				
63	43,219	3,189	7.38	107,937	1,667	3.86	109,668	1,883	4.36	109,442				
64	45,380	3,482	7.67	121,819	1,751	3.86	121,819	1,977	4.36	121,819				
Annual pension provided with annuity rates at 6 per cent														13,203

situation or position of an entire plan which is made up of members of widely varying ages and service.

It should also be noted that the calculations to determine the payments that are needed to support a pension fund are, with very few exceptions, made on a closed group basis. The costs are worked out for all present plan members assuming that there will be no future entrants to the group. As future entrants are generally younger than present staff and require lower contribution rates it is conservative to ignore them. Employers sometimes have cash flow studies made on an open group basis to investigate how the fund will operate in the long term but the actual payments assume a closed group.

Nevertheless, our examples permit a description of the mechanical task of the actuary and some insight into the features and limitations of various actuarial funding methods.

#### Accrued Benefit - unprojected

The steps in the calculation of the normal contribution of \$265 in our 33 year old employee's first year of service in the Flat Benefit Plan example are as follows:

1. The pension benefit earned by the employee for that year's service is \$500 a year, payable commencing at age 65 for life.
2. \$9.23 is needed at this employee's age 65 to buy a \$1 a year life annuity at 6 per cent interest and mortality according to the 1971 Group Annuity Mortality Table. This annuity commencing immediately at normal retirement age, e.g. 65, is important in valuing the benefits of active employees. Two assumptions are reflected in it: the probability of survival, usually taken from the same mortality table used for active employees, and a rate of interest for discounting expected future pension payments, usually the rate assumed to be earned on assets of the pension fund. Thus, the annuity factors allow for the length of life and for interest rates.
3. \$4,615 is needed at this employee's age 65 to buy a \$500 a year annuity, or pension payable commencing at age 65 for life. The calculation is  $\$9.23 \times \$500$ .
4. This sum of \$4,615 can be accumulated by the employee's age 65 by investing \$715 today, at the employee's age 33, for 32 years at the actuarially assumed rate of 6 per cent interest, compounded annually. The calculation is to discount the \$4,615 to today's values by applying a factor of .155 for 32 years at 6 per cent.

5. There is no certainty that this employee will remain in service from age 33 to age 65 to collect this pension. According to our decremental assumptions in Table 2, the survival probabilities for this employee at age 33 are:

Living to age 65	.82
Remaining in service to age 65	.53
Avoidance of disability to age 65	.86

The chance of this employee remaining in service to age 65 is therefore only  $(.82 \times .53 \times .86)$  or 37 per cent. The normal contribution for this employee this year is therefore  $\$715 \times .37$  or \$265 (as shown in Table 5).

The way actuaries in principle compute this value is to multiply the dollar value at retirement of the benefit earned for the year's service (\$500) by a deferred life annuity factor which is the actuarial present value, at the employee's age, of \$1 a year payable from age 65 for life. The deferred life annuity factor takes account not only of interest but also of the probabilities of surviving in service.

The deferred life annuity in this example would be:

Cost of \$1/year life annuity at employee's age 65, at 6 per cent -  
\$9.23 times

Discount factor of years to employee's age 65, at 6 per cent -  
.155 times

Probability of surviving in service to age 65 -  
.37 equals

Deferred life annuity of .529

Hence the value to an employee age 33 of a pension of \$1.00 a year payable from age 65 if he remains in the employer's service to age 65 is \$5.29. The calculation of the normal contribution is therefore \$500 times .529 or \$265.

In the employee's second year of service, the deferred annuity factor is .612 and the value or the normal contribution is \$306 ( $\$500 \times .612$ ).

We notice that even though the amount of pension benefits earned each year is the same, the normal contribution must increase year by year as there is less time left to earn interest and the probability of surviving in service keeps increasing. This is well confirmed in the figures in Table 5. It is obvious that this method would produce mounting total contribution rates if the work-force is aging, which

could cause difficulties for an employer in terms of increasing cash demands to provide for pensions.

The same approach is used in calculating the actuarial liability except that the dollar value at retirement of benefit earned is cumulative rather than for a single year. Thus the actuarial liability for this employee at the end of one year's service was calculated at \$306. This is the first year's normal contribution plus one year's interest plus the "benefit of survivorship" (see below) as follows:

$$\$500 / \text{year} \times .612.$$

The actuarial liability at the end of two years' service was calculated at \$700 as follows:

$$\$1,000 / \text{year} \times .700.$$

This figure is not the same as the normal contributions for the first two years plus earned interest which total \$622 as follows:

Normal contribution in first year	\$265
Interest thereon at 6 per cent (2 years compounded)	33
Normal contribution in second year	306
Interest thereon at 6 per cent	<u>18</u>
Total	\$622

The difference of \$78 is attributed to "the benefit of survivorship in service," which is an actuarial concept meaning that the benefit of those employees who are assumed to survive and remain in service to normal retirement age will be provided in part by the non-vested contributions, plus interest, made in respect of those employees assumed to die or withdraw before normal retirement age.(2)

The "benefit of survivorship" arises because equal contributions are made for all employees of the same age and salary, some of whom will work through to retirement and some of whom will die or terminate without benefit. The total contributions for the group are calculated to be sufficient to provide the pension for those who reach retirement age. Thus the contribution rate is an average, allowing for the probability of receiving or forfeiting the pension. The contributions of those who leave are reallocated among those who stay. It is this reallocation of forfeited contributions that constitutes the benefit of survivorship.

The benefit of survivorship can be a very important item since many employee groups are mobile with high probabilities of terminating employment. In our example, the chance that an employee age 30 will live and stay in service to age 65 is only 37 per cent. Thus the contributions that are made for 100 employees age 30 will go to the benefit of only 37 employees. Next year the contributions made at age



31 will eventually benefit only 41 per cent of the employees at that age. To show the total effect, when this same employee is age 50 the actuarial liability will be \$27,582 and the benefits of survivorship on the given assumptions will be about 20 per cent of the total.

This Accrued Benefit - unprojected method can also be used for career average plans. The formula for calculation of the normal contribution is the very same as before and the only thing that changes is the amount of benefit earned by the year's service. In our examples, instead of earning \$500/year for each of the first two years of service, our employee earns benefits of \$200/year in the first year ( $2\% \times \$10,000$ ) and \$210/year in the second year ( $2\% \times \$10,500$ ). The calculation of normal contributions which appear in Table 6 is as follows:

Year 1 -  $\$200/\text{year} \times .529 = \$106$   
Year 2 -  $\$210/\text{year} \times .612 = \$129$

The increase in the normal contribution in the employee's later years is even steeper with a career average plan than within a flat benefit plan because there is an extra factor which automatically ensures it, i.e., the benefits earned in succeeding years are always climbing as the salary base on which they are calculated keeps climbing.

The formula for calculating the actuarial liability is again the same as before except only for different amounts of benefit earned. Thus the actuarial liability for this employee is calculated as follows:

End of Year 1 -  $\$200/\text{year} \times .612 = \$123$   
End of Year 2 -  $\$410/\text{year} \times .700 = \$287$

Once again we see the powerful effect of interest and benefit of survivorship, since the total contributions paid are only \$235, or \$256 including interest.

#### Accrued Benefit - projected

The Accrued Benefit - unprojected method cannot be used for sound financing of a final pay plan because the pension earned each year cannot be taken as 1 per cent of the salary in the year. If it were, the total of the pension units would not add up to the pension at retirement according to the plan formula. They would simply add up to a career average pension rather than a final pay pension. The pension benefit earned each year could be defined in several arbitrary ways, but logically should be calculated in relation to the employee's expected salary in the five years just before he retires. Salary projections must therefore be made and this is why the Accrued Benefit - Projected Method must be used.(3)

Apart from the projection of salaries to determine the pension benefit earned in a particular year, the Accrued Benefit - Projected method works exactly the same way as the Accrued Benefit - Unprojected method.

With the example of the 33 year old employee's first year of service in our final pay plan, the first step would be to project salary through to age 65 as is shown in Table 7 and calculate the eventual pension to be earned. The pension is 1 per cent of the average annual salary for the last 5 years - ages 60 to 64 inclusive - times the total number of estimated years of employment, that is, 1 per cent of \$41,259 times 32 years, or \$13,203 a year.

Under this funding method, each year of service is considered to earn a pension of 1 per cent of that year's salary, increased in the ratio of the last five years average salary to the current year's salary. If the actual salary increases are exactly equal to the assumed salary scale, this means that the pension earned each year is the total pension divided by the years of employment (i.e., \$13,203 divided by 32). This method is therefore sometimes called the Accrued Benefit - constant dollar benefit method. In practice, actual and assumed salaries are rarely equal, but in our example they are. Accordingly, the unit of pension purchased is a constant \$413 each year.

The rest of the calculation of the normal contribution follows the same formula as before:

$$\$413/\text{year} \times .529 = \$219$$

In the second year of service, on the basis of our example the pension to be purchased would again work out to \$413 a year. The normal contribution would be:

$$\$413/\text{year} \times .612 = \$253$$

It is worth noting that the benefits actually earned in a final pay plan - as in a career average plan - are always climbing in succeeding years as the salary base on which they are calculated keeps climbing. However, use of the projected version of the Accrued Benefit method for a final pay plan has the effect of smoothing out its contribution rates over the years. This can be seen from Tables 6 and 7 where the normal contribution of the Career Average Plan ranges from 1.06 per cent of salary to 16.88 per cent while the Final Pay Plan ranges from 2.19 to only 7.67 per cent.

The Accrued Benefit - projected method is a more conservative funding method than the unprojected version. The same factors are used in calculating the actuarial liability here as for the Accrued Benefit - unprojected method, but the factors are applied to higher amounts of pension, namely pensions based on earnings at retirement rather than earnings at the employee's present age.

### Level Premium - constant dollar

Level premium methods work very differently from accrued benefit methods. Under accrued benefit methods a specified amount or unit of pension benefit is associated with each year of the employee's service and it is to be paid for or purchased outright by the annual normal contribution. Level premium methods, on the other hand, are more like instalment payment plans in that the total cost of the eventual pension to be earned for all years of service, past and future, is first calculated and then equal annual instalments to pay for it are calculated.

The steps in the calculation of the normal contribution for our 33 year old's first year of service in the Flat Benefit Plan using the Level Premium - constant dollar method are as follows:

1. The pension to be earned for 32 years of employment - from age 33 to age 65 - will be  $32 \times \$500$  or \$16,000 a year.
2. The deferred life annuity factor for an employee age 33 is .529, as in our earlier example. The value at age 33 of the pension of \$16,000 a year is therefore \$8,464, i.e.,  $\$16,000 \times .529$ . This \$8,464 may be thought of as the total cost at age 33 of the eventual total pension; in other words, the lump sum amount which if invested at the employee's age 33 at 6 per cent interest compounded annually and with benefit of survivorship will produce the funds needed at the employee's age 65 to provide for the pension thereafter of \$16,000 a year.
3. The present value of a "temporary employment based annuity" of \$1 per year for an employee age 33 is \$9.62. This annuity by definition is assumed to be paid at the beginning of each year that the employee is alive and still at work. Its present value reflects the probability that the employee will survive in service from year to year all the way to retirement (the same probabilities as used in developing the deferred life annuity factor) with the annuity payments being discounted back to the employee's age 33 at the actuarially assumed rate of interest.
4. Since a temporary employment based annuity of \$1 per year from age 33 has a present value of \$9.62 and the present value of the total eventual pension is \$8,464, a payment of \$880 per year ( $\$8,464 / \$9.62$ ) from the employee's age 33 is needed to provide the fund ultimately required at age 65. This payment of \$880 per year is the normal contribution to the pension fund and this annual payment once established is a dollar amount which does not vary with the employee's income or age.



Level premium funding methods may be characterized as instalment payment plans taking into account the probability of a pension becoming payable at retirement as well as accumulated interest and taking into account the probability that the pensions will be received. The constant dollar method sets a fixed dollar amount for every instalment. The other methods sets a fixed per cent of pay for every instalment. In both cases the instalment payments paid so long as the employee is in service with interest will contribute on average the pool of capital needed at the employee's age 65 to provide his or her pension.

Level Premium - constant per cent of salary, entry age normal

This is a widely used method for final pay plans. The calculations under entry age normal and other level premium methods, including Aggregate Funding, may be made separately for each individual, but more usually a weighted average percentage of earnings is calculated which applies to all members of the plan.

Under this method, there is no attempt to specify the pension benefit earned for a particular year of service. The eventual total pension to be earned for all years of service of a typical new entrant is calculated from the formula in the plan for pension benefits. The total cost of this pension is then determined and spread evenly as a per cent of salary over all years between the employee's age at entry into the plan and age at normal retirement. Sometimes the employee's actual age of entry into the plan is used but usually the assumed entry age is the average for all employees or is chosen having regard to the ages of recent recruits and the prospects for the future. We first consider an assumed entry age of 30 and a single employee who in fact entered at that age with a salary of \$8,638. Salary at age 30 is assumed to be \$8,638 in order to be consistent with a salary of \$10,000 at age 33 and our assumption that salaries increase at 5 per cent per annum.

The steps in the calculation of the normal contribution under the Final Pay Plan for our 30 year old employee's first year of service are as follows:

1. The pension to be earned by a new entrant at age 30 for a total of 35 years of employment - from age 30 to age 65 - will be  $35 \times 1\% \times \$41,259$  (being the last five years average salary), that is, a pension of \$14,441 payable from age 65 for life.
2. The deferred life annuity factor for an employee age 30 is calculated in exactly the same manner as described above for a 33 year old employee. The deferred annuity factor is .324. (Annuity value at 65,  $\$9.23 \times$  discount for interest .130  $\times$  probability of surviving in service .27).
3. The value at age 30 of the pension of \$14,441 is \$4,679 (that is,  $\$14,441 \times .324$ ).



4. The value of a temporary employment based annuity of 1 per cent of annual salary is 13.98 per cent of salary at age 30.
5. Accordingly, a 1 per cent contribution annuity has a present value at age 30 of 13.98 per cent of the salary of \$8,638 or \$1,208.
6. If a 1 per cent contribution annuity is worth \$1,208, then a 3.86 per cent contribution annuity is worth \$4,679, which is the present value of the pension per step 3 above. Hence 3.86 per cent of salary is the normal contribution for a new entrant at age 30.

Thus in a entry age normal calculation the normal contribution for this employee who entered at age 30 would each year be 3.86 per cent of salary in the year. The liability for the employee would be zero at the entry date and in the following years would be represented by the contributions with interest and with benefit of survivorship, (adjusted for actuarial gains or losses, if for example the employee's salary rose at a different rate from that assumed).

The results are different where an employee enters the plan above the assumed entry age, say age 33. The normal contribution is by definition the same percentage of salary as if he or she joined at age 30, but there is a supplemental liability at the date of joining even though there is no past service. In general terms, the values are determined as follows:

1. The pension to be earned by an employee who enters at age 33 is  $32 \times 1\% \times \$41,259$ , or \$13,203.
2. The deferred life annuity factor at age 33 is .529 so that the present value of the pension is \$6,984 (that is, \$13,203 times .529).
3. The value of a temporary employment based annuity of 1 per cent of annual salary in all years from age 33 to age 65 is 16.09 per cent of salary at age 33. Since the salary at age 33 is \$10,000 the present value of 1 per cent of annual salary is \$1,609.
4. The entry age normal contribution rate is 3.86 per cent for all employees in the plan. Hence we find that the present value of all the future normal contributions for the employee age 33 is  $3.86 \times \$1,609$  or \$6,211.
5. As the total value of the pension to the employee is \$6,984 (item 2) and the value of the normal contributions is \$6,211 (item 4) there is a deficiency of \$773 which is created immediately when the employee joins the plan at age 33. The

reason is of course that a contribution rate appropriate for an employee at age 30 is not sufficient for an employee at age 33. This deficiency constitutes a supplemental liability which must be paid off by equal annual instalments over 15 years or less. (In the more accurate calculation in Table 7 the liability is found to be \$801, which is liquidated by 15 equal annual payments of \$78 each.)

In addition to the supplemental liability arising from entrants at higher than the assumed normal entry age, there may be a further supplemental liability if the plan awards pensions for past service when it is established, or if the benefits are subsequently increased.

In subsequent years, the normal contribution is not changed from 3.86 per cent of payroll unless there are significant changes in the actuarial assumptions (including the entry age assumption) or in the plan provisions. The actuarial liability is determined by calculating the then present value of the employees' eventual pension benefits and subtracting the value of normal contributions for future service at 3.86 per cent or at the amended rate on estimated future payrolls. If plan improvements have been made in the interval, the supplemental liability related to them requires a valuation of the plan as it was before and after the amendments.

A change in actual average age in the work-force which is such an important factor in accrued benefit methods is not so critical with the entry age normal method. Under this method the actuary must watch how the actual entry age of new members compares with the assumed entry age. When it is higher, as age 33 is in the example, it creates an instant supplemental liability and the effect is to pay off a portion of the pension cost over 15 years instead of 32. When it is lower, say age 25, the value of normal contributions exceeds the value of the individual's pension, since contributions calculated at age 25 would be lower. If the assumed entry age has been properly chosen, there will be some employees entering earlier and some later, so that the net difference will be small.

If new employees join the plan at or near the assumed age and the other actuarial assumptions are realized, entry age normal method offers the advantage that the normal contribution will be a constant percentage of the payroll of the plan members as we saw in Tables 6 and 7. A current example of how this helps employers avoid an increase in pension contributions is seen in the Ontario teacher's plan, the Teachers' Superannuation Fund (TSF). Declining school enrolments are forcing cut-backs in spending and teacher positions as well as fewer hirings of new teachers. It seems inevitable that the average age of plan members will rise, but since the TSF uses the entry age normal method for funding, the normal contributions are likely to stay at their former level as a percentage of payroll as long as there are not significant changes in plan provisions or actuarial assumptions.

### Level Premium - constant per cent of salary, attained age normal

The attained age normal method is similar to the entry age normal method except that the normal contribution is based on the actual attained ages of the employees when the plan commences as opposed to an assumed entry age. Any supplemental liability is strictly related to actual past service credited to the employees and the normal contribution when the plan comes into force is expressed as the constant percentage of salary of plan members which will pay for the pensions in respect of their future service.

The attained age normal method is perhaps a more natural choice than entry age normal when a pension plan is established, since the supplemental liability is strictly related to the actual past service of the employees and the normal contributions theoretically cover the liability for service after the effective date of the plan. Thus normal contributions start at a relatively high level and tend to come down (as a percentage of payroll) as new entrants join who are younger on average than the starting group of employees.

The arithmetical steps have not been given in detail for this method. As shown in Tables 6 and 7, the normal cost is slightly higher but there is no supplemental liability in our example to be liquidated.

### Aggregate Funding

Aggregate Funding is very similar to the attained age normal method and confusion of these names often occurs. The essential difference between the two methods is that under aggregate funding supplemental liabilities, regardless of their origin, are included in determining the normal contribution (with a few exceptions discussed under below).

Thus at any actuarial valuation date the normal contribution as a percentage of payroll is found by subtracting the assets from the total actuarial liability for all past and future service and dividing by the value of a 1 per cent temporary employment based annuity. The excess of the total actuarial liability over the assets at each valuation is paid for by contributions which are the same percentage for all employees. The purpose of the actuarial valuation is principally to determine the new percentage rate of contribution (or instalment payment rate) needed to support the benefits.

This funding method is illustrated by the following example with the same final pay plan described before, but assuming that when the plan is started there is only one employee, age 40, with 7 years of past service. The steps in the calculation of the normal contribution of \$939 under this method are as follows:

1. The pension to be earned for 32 years of service under the final pay formula is \$13,203 as in previous examples.



2. The deferred life annuity factor at age 40 is 1.228, so that the value of the pension is \$16,213 (that is, \$13,203 x 1.228).
3. A temporary employment based annuity at age 40 of 1 per cent of salary has a present value of 17.282 per cent of salary.
4. Since the salary at age 40, consistent with previous assumptions, is \$14,071, the value of a 1 per cent temporary employment based annuity is \$2,432.
5. Accordingly, the contribution rate required for aggregate funding is 1 per cent x \$16,213/\$2,432 or 6.67 per cent of payroll.
6. The first year's contribution is 6.67 per cent of the first year's salary, \$14,071, that is \$939.

In effect the Aggregate Funding method allows the cost of past service pensions to be written off in a different manner from that provided under regulations of the Pensions Benefits Act. The latter requires such liabilities to be liquidated by equal annual instalments over not more than 15 years. The Aggregate Funding method spreads the payments over the period from the employees' attained ages to age 65, i.e., over 25 years instead of 15 years in our example here. Moreover the payments would be expressed as a percentage of salary of all plan members. Thus the payments would tend to rise as salaries rose but tend to fall as members retired or died or terminated. In some cases the funding would be less rapid than contemplated by regulation, in other cases more. The contributions would of course be redetermined at each actuarial valuation date.

Considering total costs, Aggregate Funding can be a conservative method in a continuing company, since contributions are made for new entrants at the same rate as for the existing group. The initially established rate, for a mature group of employees and including past service costs, would be applied to a new entrant even though a lower rate might well suffice for his benefit. At the succeeding valuations the contribution rate would be redetermined and would probably be reduced.

In practice, the Aggregate Funding method sometimes recognizes a supplemental liability for past service credits when a pension plan is established or if there are major amendments. The Aggregate Funding principle is then applied to the balance of pension costs. This is good practice, since the supplemental liability will be paid off in 15 years and the normal contribution percentage will be more stable - it will start at a lower level but will not drop so rapidly when new entrants are enrolled in the plan. The supplemental liability is usually, but not always, determined by use of one of the accrued benefit funding methods.



Another difficulty with Aggregate Funding is that actuarial losses are not identified at the successive valuations, and payment of them is simply blended with the rest of the costs. Losses may occur from unanticipated salary increases, a lower than expected interest return, fewer decrements from death and disability and other unfavourable trends. The net amount of losses minus gains from these items is the experience deficiency under the Pension Benefits Act and should normally be paid off in 5 years or less.

The Pension Commission of Ontario on March 9, 1966 issued a directive on Frozen Initial Liability Valuations, (which include Aggregate Funding and variations on other level premium systems) which directive is still apparently in force. It provides that if the normal contribution rate (as a percentage of salary) has fallen between two actuarial valuations, it will be presumed that no experience deficiency has arisen. If, however, the normal contribution rate has risen, the actuary must use one of the procedures outlined in the directive to determine if an experience deficiency has arisen and the amount thereof. The usual 5-year rule applies to an experience deficiency so determined.

The examples show that all the methods examined are designed to provide the necessary funds for retirees' pensions if the plan continues to operate indefinitely, i.e., is a "going concern." However, a vital consideration is whether the funding will be such that if the plan is discontinued at any time there will be enough money in the fund to purchase or provide all the promised pension benefits.

The "going concern" concept means taking a very long term view in selecting actuarial assumptions, recognizing liabilities, and making payments on the basis that the plan will continue in operation and the benefits promised to employees will be delivered. In our examples with say a 10-year vesting rule, there would be no vested benefits for the employee in years 1 to 9 but cash contributions are required just the same. Also, the payments for final pay plans are based on projected earnings, although in the event of termination of the plan the benefits would be based on the lower actual earnings to date. On the other hand, discounts for future terminations are made in the calculations and would not apply in the event of plan termination. On balance, it seems probable that funding under each of these methods would, in the event of plan termination, provide all pensions to retirees and cover all other vested benefits as well as a major part of the accrued pensions of employees who are not yet vested. The main factor which might interfere with this would be the existence of supplemental liabilities with many years' instalments remaining unpaid.

The more conservative the funding method, the greater the probability of meeting all the liabilities in the event of plan termination. The examples show that the level premium methods are more conservative than the accrued benefit methods. Perhaps aggregate funding is more conservative than the accrued benefit methods; certainly it is less

conservative than the level premium methods. Plans using accrued benefit funding methods will usually meet a major proportion of the liabilities, unless there is a problem with supplemental liabilities as alluded to before. It follows that aggregate funding should do about as well and the level premium methods will do even better.

## NOTES

- (1) T. Ross Archibald, F.C.A., Accounting for Pension Costs and Liabilities (A Reconciliation of Accounting and Actuarial Practice), a CICA research study (unpublished).
- (2) Dan M. McGill, Fundamentals of Private Pensions, Wharton School, 4th ed., June 1979, Chapter 15.
- (3) Ibid.

## LIST OF TABLES

Table 1 - Essential Actuarial Task	173
Table 2 - Major Decremental Assumptions and Specimen Rates	177
Table 3 - Major Economic Assumptions	179
Table 4 - Leading Actuarial Funding Methods in Use in Ontario	186
Table 5 - Actuarial Funding Methods for Flat Benefit Plans	188
Table 6 - Actuarial Funding Methods for Career Average Plans	190
Table 7 - Actuarial Funding Methods for Final Pay Plans	192



## Chapter 10

# The Effect of Inflation on Retirement Income

In a period of severe inflation such as has prevailed since the early 1970s, those who depend upon fixed incomes suffer a substantial loss of purchasing power. The realization in recent years that pensioners in particular face a serious decline in their standard of living has led to considerable public concern, and with it the advocacy of various forms of inflation protection. In particular, much controversy has been generated by the indexing of pensions in the federal public service. Probably because of extensive coverage in the media, the subject of inflation protection appeared in most submissions to the Commission and was very much in the minds of the respondents to our Consumer Survey.

"Indexing" is the term commonly used to define compensation for a loss in purchasing power of the dollar due to inflation. The form of compensation is often a percentage increase in fixed payments, equal to part or all of an increase in the Consumer Price Index. When such an adjustment is made automatically from year to year, "indexing" is said to be in effect. In some cases, adjustment for loss of purchasing power may be made by payment of an additional amount not specifically related to the CPI. Such payments, whether on a regular basis or not, are known as "ad hoc" increases; that is, they are for a special purpose and without a formula that would imply a commitment to similar increases in the future. In this discussion we use "indexing" in the broad sense of any form of additional payment intended to compensate for loss of purchasing power.

Submissions to the Commission reflected a wide range of views, from those advocating automatic indexing for all pensions to those asserting that there should be no indexing at all. Many who acknowledged a need

for adjustments were also concerned with the cost of the additional payments. The following excerpts represent the diverse positions:

"I always tried hard, worked hard and met my responsibilities personally through the years in which I was able and privileged or permitted to earn a salary, paid my taxes and tried to 'save' on a limited income. Money saved in the 1940s is not nearly of equivalent worth now and indeed one sacrificed many necessities to say nothing of luxuries to lay aside a dollar for a 'rainy day.' Yes I am keenly interested and concerned that pension incomes be indexed to cost of living."

Rita Dinner (Brief 45).

"For those on fixed income, including the overwhelming majority of pensioners, inflation is nothing less than a prolonged and direct assault upon their standard of living and way of life."

"We believe that all pensioners have the right to indexation, based on price inflation rates; that our society, having accepted the basic rationale for sufficient retirement income, has the moral responsibility to maintain that level of income; and that because such retirement income is not expanded, but merely maintained by indexation, we not only believe that our society can afford to index pensions but that we can't afford not to."

National Union of Provincial Government Employees (Brief 177)

"Inflation itself is the root cause of pension inadequacy and the Church urges the Commission to state this clearly and forcefully, to add to the growing public and political acceptance of the need for vigilance to resist programs which are inflationary or contribute to expectations of increased inflation."

The United Church of Canada (Brief 206)

"We recognize that, in theory, indexing is certainly desirable and something that we should perhaps strive for. However, the current approach of uncapped indexing by some creates a second class citizenry out of those who do not have, or could not afford, uncapped indexation of benefits."

Dominion Foundries and Steel, Limited (Brief 129)

"If each and every individual must share the responsibility for the general economic well-being of a country and assume a role in making provision for financial resources at retirement, there is no reason why protection against inflation should be given to selected groups. There must be some sharing of economic risk."

"In the industrial private sector, costs which increase when economic conditions in the marketplace prevent a transfer of such cost increases to product or service prices severely impair the profitability of business, and may harm its ability to raise capital."

Labour represents a high proportion of industrial costs and nearly all government costs. A formula to automatically raise the cost of labour in these two sectors not only creates a situation which may jeopardize corporate profitability but also creates a situation which may eventually turn into increased taxation. Furthermore product prices in Canada could rise to where they become totally uncompetitive with suppliers in other countries."

Algoma Steel Corporation, Limited (Brief 218)

"This need for pressure on governments points out an ironical disadvantage of the automatic indexing schemes, i.e., if benefits are indexed we feel more comfortable with inflation."

Michael Beswick (Brief 104)

"Our union has been wary about pushing for indexed pensions in the private sector. We are simply not convinced that it is in fact feasible to fully fund private indexed pensions; and without funding, the security which indexation is supposed to guarantee can't exist.

"If public pensions are in fact made adequate and indexed to the average industrial wage, then significant protection for pensioners would already exist independent of private pensions."

United Auto Workers (Brief 264)

"Some procedure is needed for increasing the dollar value of pensions in time of rising prices (whether due to physical shortages or to inflation), but not for total conformity to a price index."

Johnson and Higgins Willis Faber Limited (Brief 213)

"Because expenditures in constant dollars tend to decrease with advancing age, pension benefits should reflect this decrease. They should also reflect the increase in the current dollar cost of the necessary expenditures. Therefore, we conclude that partial indexing rather than full indexing to a Pensioner Index is appropriate."

William M. Mercer Limited (Brief 244)

"There is no economic obstacle to indexed benefits. Our economy is fully capable of providing the same basket of goods and services during retirement years as it is at the commencement of retirement. To argue that there is any economic obstacle to maintaining the purchasing power of retirees is to advance the untenable. The difficulty arises from the context in which private pension funds operate."

Ontario Public Service Employees Union (Brief 208)

While both proponents and opponents of indexing were represented in the submissions, most respondents in the Consumer Survey expressed their desire for some means of protecting their pensions from inflation. What



was not clear was how they thought such protection should be provided or at whose expense.

With respect to government programs, 85 per cent of the respondents to the Consumer Survey agreed that OAS and CPP payments should be fully indexed to the cost of living; 10 per cent did not know if there should be any indexing, and only 2 per cent did not want any form of indexing. About 60 per cent thought indexing should be paid for from general taxes and about 12 per cent believed that increased contributions should provide the additional funds required.

Table 1 shows that respondents were widely in favour of total indexing for both private and public employment pensions, with 74.5 per cent advocating full indexing for private plans and 64.2 per cent agreeing that complete indexing of programs for civil servants was desirable. Only 5.9 per cent rejected any form of indexing for private plans and 11 per cent were opposed to any form of indexing of public employees' benefits. Again views varied as to how the costs of indexing would be met.(1)

In view of the wide range of opinions and interest groups it is necessary to examine carefully the issues in pension indexing. At the outset it should be noted that the debate has focused on the indexing of defined benefit pension plans. Because there are special problems in funding for indexing in defined benefit plans, little has been said about money-purchase plans, which though covering a small number of employees are also affected by inflationary pressures. Virtually nothing has been said about those who have never been in a pension plan or had the opportunity to join one and who have made provision for retirement in other ways. We must not forget that in order to benefit from pension indexing, one must first have a pension. Thus consideration of what is the proper response to inflation must take into account the situation of all retired persons in our society.

#### THE PROBLEM

Traditionally, the economy has expanded year by year in terms of the total of all goods and services produced. To the extent that this growth in the Gross National Product is "real" - that is, represents an increase in volume rather than dollar value - it is a measure of the productivity of the economy. Expressed in per capita terms it indicates an increase in the nation's standard of living, since there has been an increase in the total output to be shared in one way or another by the population. In the past, overall productivity has increased at an annual rate of some 2 per cent. That figure may be taken, therefore, as an approximation of the increase in living standards experienced by or expected by the average Canadian, provided that the individual's income is linked to economic growth through wages, salaries, commissions, dividends, or some similar mechanism. Pensioners, however, are



Table 1

Respondents' Attitudes towards Total and Partial Indexing of Specific Types of Pensions

	Federal MP pensions	Provincial MPP pensions	Civil service pensions	Other employment pensions
Number of respondents: 998			(Per cent)	
Pensions should be totally indexed and paid for through general taxes	24.2	24.4	36.6	41.9
Pensions should be totally indexed and paid for through increased contributions	9.6	9.7	12.4	16.4
Pensions should be totally indexed, but did not know how to fund	5.1	5.2	7.0	7.6
Pensions should be totally indexed, but not funded through taxation or increased contributions	6.5	6.4	8.2	8.6
Total in favour of total indexing	45.4	45.7	64.2	74.5
Pensions should be partially indexed	10.7	10.6	5.3	3.2
Pensions should have percentage increase	3.6	3.6	2.3	1.2
Did not know if any form of indexing or increase should be provided	20.4	20.2	17.1	15.1
Did not want any form of indexing or percentage increase	19.7	19.7	11.0	5.9

Source The Royal Commission on the Status of Pension in Ontario, Consumer Survey, Table 45.

not in a position to benefit from this productivity "dividend" and so are unable to achieve any improvement in living standards comparable to that available to people still in the work-force. Even in the absence of inflation or with full indexing of their pensions, they must still face a relative decline in their purchasing power of roughly 2 per cent each year.(2)

The impact of inflation on fixed incomes is dramatic. To illustrate, we might assume a retirement income of \$900 per month from all sources - none of it indexed or adjusted in any way. At present that amount might be expected to cover food, shelter and other basic necessities, a reasonable outlay for entertainment and similar discretionary spending, and possibly some saving or acquisition of capital assets. With an inflation rate of 8 per cent, however, the \$900 will buy only \$833 worth of goods and services by the end of the first year. After two years the pensioner's buying power will have dropped to \$769; after three years, \$714. Five years after retirement the same dollar amount of income will have a "real" value of only \$566. With purchasing power cut by well over one-third, the pensioner almost certainly will have given up saving, will no longer be able to make any significant capital purchases, and is likely to have some difficulty budgeting for the necessities of life. Even without inflation, the pensioner's standard of living will decline in relation to that of the working population by a further 2 per cent each year, since the person's non-wage income will not reflect productivity improvements.

Clearly this is an extreme example, ignoring as it does the protection now afforded by indexing of payments from public programs. Our purpose at this point is to underline the need for such indexing, and to assist in an understanding of the concerns of the elderly whose living standards rely to a significant extent on fixed incomes.

Thus, the consequences of a fixed income are twofold. No longer protected against price increases through wage increases, the individual's income falls further behind, not only in relation to prices but also to the income of those who continue to work and receive pay increases that reflect productivity growth.

Other losses to inflation may directly or indirectly affect the pensioners' situation. "It is generally accepted that debtors gain and creditors lose from inflation, since the former group is repaying debts in dollars that have a lower real purchasing power than when the funds were borrowed."(3) As lenders, pension funds may lose in two ways. Traditionally investors expect to earn a real rate of return of about 3 per cent. A higher interest rate reflects the lender's expectation of inflation over the term of the loan. Thus, a rate of 7 per cent represents a 4 per cent assumption for inflation. If inflation in fact runs at 5 per cent during the term of the loan, the lender will lose and the debtor will have the advantage. In addition, if inflation accelerates year by year and the term of a loan exceeds one year the

creditor will suffer a capital loss because of his inability to make new arrangements each year to invest the capital at the higher nominal rates of interest needed to offset inflation.(4) Turnover of portfolio investments which have dropped in value will result in capital losses. Since pension funds generally lend on a long-term basis because of the nature of their commitment, it is important to remember that pension funds may well lose from accelerating inflation and at the same time may be prevented from taking advantage of the high rates of interest which are associated with inflation.

Similarly, many who have retired from the work-force will have savings invested in fixed-term securities whose value is eroded by inflation. In his work for the Commission, Dr. Donner observes that:

"Those whose sole source of income is OAS and GIS from the federal government, and perhaps income supplements from provincial governments, are protected from higher rates of inflation, since these benefits are fully indexed, albeit with a time lag. Those who will be adversely affected are the individuals who receive some income from employer-sponsored pension plans that are not fully indexed for inflation and individuals receiving returns to capital where the nominal returns significantly fall behind the rate of inflation."(5)

If there are losers in an inflationary period there are also "winners," and this point is illustrated in Dr. Donner's paper cited above. (6) For present purposes it is sufficient to note that pensioners are perhaps the most conspicuous losers.

#### INFLATION AND PENSION PLAN DESIGN

The effect of inflation on pensions depends on how benefits are determined. Three types of plan design - average earnings, money-purchase, and career average - are commonly in use.

The final average earnings formula has gained in popularity in recent years because of its built-in protection against inflation in the pre-retirement years. Pensions based on the last three to five years' earnings may be expected to reflect in some measure the standard of living of the worker before retirement. However, even this measure does not give perfect protection, for the purchasing power of earnings in each year included in the average will have fallen. The Professional Institute of the Public Service of Canada estimates, for example, that in a period of 5 per cent inflation a pension calculated on a six-year average will be about 11 per cent lower than a pension calculated only on the earnings in the year of retirement.(7) Nevertheless, the final-pay approach is seen as relatively favourable by many plan sponsors and employees. Several briefs received by the Commission advocated



legislation to require all plans to incorporate some version of final earnings as the basis of their benefits.

For the employee who leaves an employer before retirement the advantage of pre-retirement inflation protection usually stops at termination, since the pension benefit is calculated on earnings prior to termination. It has been suggested that deferred pensions in those cases should be indexed from the date of termination to retirement.

The worker with a money-purchase plan suffers more from pre-retirement inflation than the worker with a final average formula. Contributions based on a percentage of wages can be expected to be lower in the earlier years of work, and it is those low contributions on which interest is compounded for the longest time. In a period of rising inflation the contributions made each year will decrease in real value, although interest may serve to preserve or even increase their original purchasing power. However, the nominal interest rate may not rise sufficiently to offset the effect of inflation. In addition, it may not be possible to turn over investments at higher nominal interest rates as inflation continues. However, if interest rates are high at the time of retirement and annuity prices are correspondingly low, some "inflation dividend" may accrue to the worker with the money-purchase plan when the annuity is purchased.

Members of career average plans are severely affected by inflation during the working years. Pension credits earned year by year are devalued continuously, with the earliest likely to have little purchasing power by the time they become payable. As a result, the career average pension cannot be expected to bear any clear relationship to the recipient's pre-retirement level of earnings. While it is possible to update career average benefits periodically by restating the earnings base for accrued credits, the sponsor has no obligation to do so, regularly or at all. As with final average plans, benefits that are vested on termination of employment are not subject to any subsequent adjustment, either to reflect later earnings levels or to compensate for inflation.

In fact the adequacy of any pension, regardless of its formula, is impaired by inflation before as well as after retirement. High rates of inflation in recent years show that even a final average formula will not necessarily provide an acceptable degree of protection during the working years; and the erosion of purchasing power after retirement is compounded by the inability of pensioners to share in productivity gains. If these shortcomings were a matter of somewhat infrequent concern when annual inflation rates were in the 2 to 3 per cent range, there can be no question of their significance today, after a period that has seen the value of the dollar cut in half in about eight years and looking forward to an era of a growing retired population with longer life expectancies.<sup>(8)</sup> Double-digit inflation quite simply means that the person who retires with what now appears to be an adequate pension can anticipate some years of comparative hardship in the future.



It has been suggested that the needs of the elderly decline with advancing age and, accordingly, the elderly could afford to bear some loss of purchasing power in retirement.(9) This argument is based on statistics of expenditures for the elderly, which show that certain types of expenditure decline with age. Those who disagree argue that the elderly spend less because their real purchasing power has dropped; or that the elderly fear a lack of income and actually save in their early years of retirement.

Our Consumer Survey tends to support the second viewpoint. When retired respondents were asked if their income needs for their own consumption had changed, 63 per cent stated they had increased, 6 per cent believed they had decreased, and 31 per cent said they had remained the same. Of those who said their needs had increased, 97 per cent cited the cost of living as the major cause; of these 36 per cent said all their costs had increased, while 25 per cent were concerned mainly with food prices. Overall, 22 per cent expressed difficulty in maintaining their pre-retirement standard of living.(10)

Survey respondents were also asked to designate what factors were of concern to them in retirement and to what degree. Of nine suggested factors, "financial position" ranked sixth and was expressed as a concern by 66 per cent of the respondents, while "ability to remain in own home" and "remaining independent" - both of which have financial implications - were cited by 74 per cent and 70 per cent respectively. Thus, as expected, maintenance of an adequate financial position in retirement is a pressing concern, expressed in terms which clearly indicate a desire to sustain in some constant degree a pre-retirement standard of living.

#### INFLATION FORECASTS

Important to this discussion is the possible course of inflation in the future. Assuming that a moderation of inflation would ease the pressure for indexing, many briefs advocated treating the disease rather than the symptoms and called for a general resistance to measures that would fuel inflation. Some argue that indexing itself will cause inflation to accelerate.(11)

In preparing its projections for the Canada Pension Plan, which of necessity was its first major research project, the Commission asked Dr. Donner to develop economic scenarios with low, medium, and high inflation rates. These are set out in Table 2.

Other projections may be compared with Donner's estimates to provide a further perspective on the problem of inflation. The Department of Insurance, for example, assumed an annual increase in the inflation rate of 9 per cent in 1978 in its CPP projections, falling gradually to 3.5 per cent in 1983 and holding constant thereafter.(12) Ontario

Hydro's long-range economic forecast predicts inflation rates of at least 6 per cent a year until the middle of the 1980s and 5 per cent thereafter. Beyond 1990 there is little information on which to base any further forecasts, so for the purposes of the Commission's projections the figures remain constant. An important point in all of the forecasts, however, is the trend towards moderating inflation.

Placing these forecasts in the pension context, we may better assess the problems now facing the retired and Canadians generally. Dr. James Pesando calculated the effect of a constant rate of inflation of 6 per cent over a period of 15 years, a rough estimate of life expectancy at age 65, and found the real value of a fixed dollar would drop to 42 per cent of its initial value after 15 years.(13)

Table 2  
Projections of Probable Rates of Inflation, Three Scenarios, 1978-1990

	Low	Medium (Per cent)	High
1978	6.3	7.3	9.3
1979	5	6	8
1980-84	4.5	5.5	7.5
1985-89	4	5	7
1990 and later	2	4	6

Source Arthur Donner and Fred Lazar, "Private Pensions and Indexing: A Review of Issues and Policy Alternatives."

#### THE CONSUMER PRICE INDEX AND THE PENSIONER

A commonly used measure of the effect of inflation is the Consumer Price Index. Established by the federal government at the beginning of this century, the CPI records the percentage change through time in the price of a constant "basket" of goods and services representing the purchases of a particular population group in a specified time period. Items to be priced are determined from the Urban Family Expenditure Survey carried out periodically by Statistics Canada. Some 300 of the most representative items are selected to make up the basket in seven major expenditure categories: food; housing; clothing; transportation; health and personal care; recreation, education, and reading; and tobacco and alcohol.

Each item is assigned a weight according to its relative importance in expenditures of the families surveyed. The weights are adjusted from time to time as spending patterns are found to have changed; some items may be added, deleted, or redefined; and the target group itself is subject to adjustment to reflect changing income levels or family characteristics. One aspect of a revision made at the end of 1978 is illustrated in Table 3: the new weights indicate that housing,

transportation, recreation, reading, education, tobacco, and alcohol had become more important in the typical family budget relative to food, clothing, health, and personal care.

Table 3

Comparison of 1967 and 1974 Expenditure Weights Used in the Consumer Price Index, by Major Component

	1974	1967
All items(a)	100.0	100.0
Food	21.5	24.8
Housing	34.1	31.4
Clothing	10.1	11.3
Transportation	15.8	15.2
Health and personal care	4.0	4.5
Recreation, reading and education	8.3	6.9
Tobacco and alcohol	6.2	6.0

a Rounded figures.

Source Statistics Canada, The Consumer Price Index, Cat. 62-001, February 1979, p. 19.

The monthly CPI is quoted as a percentage of the value in a base year, which is changed about every ten years. At present the time base is 1971 and all prices are taken to be 100 in that year. Thus, for example, an index of 200.1 (January 1980) means that the price of the consumer's "basket" of goods and services was 200.1 per cent of its base level or, more simply, had doubled in the period since 1971.

A detailed examination of the structure and operation of the Consumer Price Index will be found in a paper by Ann Jamieson, reproduced in Volume VIII.

Many of the briefs took issue with the use of the CPI as a suitable measure of the effect of price increases on incomes of the elderly and as a basis for indexing their incomes. Many felt that a "pensioners' basket" containing items more likely to be purchased by older people would be a better measure. The briefs suggested that expenditure patterns for middle-income groups were not representative of those of the elderly whose incomes tended to be at the lower end of the scale.(14)

The Commission, therefore, undertook a thorough review of the Consumer Price Index in Canada, and also examined the experience of the United Kingdom with a pensioner's index.

"The UK General Index of Retail Prices is intended to reflect the average spending pattern of the great majority of households, including those of practically all wage earners and most salary earners. Only two classes of household are excluded, on the ground



that their spending patterns differ greatly from that of the others. These two groups are:

- The 'pensioner' households with limited means - those in which at least three-quarters of the total income is derived from national insurance retirement or similar pensions and/or supplementary pensions or allowances; these amount to about 10 per cent of households.
- The 'high income' households - the three or four per cent where the 'heads of household' have the highest weekly incomes.

"The expenditure patterns of the households covered by the General Index are derived from a continuous Family Expenditure Survey (FES) and these are used to update the weights of the index each year.

"Separate indices are compiled and published for one and for two person 'pensioner' households; those excluded from the General Index. These are essentially a reweighting of the price indices for individual goods and services used in the calculation of the General Index. The weights for the 'pensioner' indices are also obtained from the FES.

"Housing costs are excluded from the 'pensioner' indices because it is unlikely that the indices for rent and rates calculated for General Index households would apply to 'pensioner' households. It is likely that a large proportion of 'pensioners' live in older, possibly rent controlled, property and receive rent and rate subsidies. The compilation of separate housing indices for 'pensioner' households would be difficult and rather costly.

"Although there are substantial differences between the weights of the 'pensioner' indices and those of the General Index this does not seem to have had a very great effect on the relative movements of the indices....The one person 'pensioner' index for example has increased only 1-1/2 per cent more than the General Index (excluding housing) in the period from January 1974. In general we would argue that the General Index is a reliable measure of the impact of prices on most households."(15)

While particularly instructive, since they reflect actual experience with a pensioners' index, the foregoing comments from the United Kingdom are complemented by the results of several Canadian studies of expenditure patterns of low-income and elderly families in relation to those of the average or target family, and to what extent a more specific index would be appropriate. As cited in Ann Jamieson's paper (in Volume VIII) those studies all suggest that a pensioners' index as an instrument for adjusting incomes would not produce significantly different (or necessarily better) results than the general Consumer Price Index.



The Commission concluded that construction of a separate index for pensioners would be a very complex task, would involve great expense, and would not produce results very different from the CPI. Food and housing are the largest items in expenditures of the elderly just as they are for the general population, and expenditures within these categories will vary with individual tastes, few of which will be determined by age. A rough comparison of increases in costs of food and housing separate from the CPI revealed that increases in these two categories were in line with the overall increases shown in the CPI. In fact, it has often been argued that the CPI overstates rather than understates the effect of inflation on prices because it does not take into account substituted products, new products, and technological improvements.

As food costs continue to escalate, there is no question that those with low incomes are worse off than those in the higher brackets who spend proportionately less on food. Still, the Commission does not believe that this is likely to continue over such a long period of time that it would be useful to construct a separate index for pensioners' expenditures. The advantage of the widespread use and acceptance of the CPI in the Commission's opinion offsets any benefit that might be derived from a pensioner's index.

#### EXISTING INFLATION PROTECTION

At present the Consumer Price Index is used in certain programs, directly or as a reference point, to adjust pension income after retirement. In addition, mechanisms may be found which have the effect of compensating at least in part for inflation before retirement. Pre-retirement adjustments in employment pension plans were mentioned earlier in this chapter, but will also be discussed here in order to place them in perspective with other inflation-related adjustments.

#### Government Programs

The most comprehensive indexing schemes involve government programs for the elderly. Old Age Security pensions, Guaranteed Income Supplements, and Spouse's Allowances are adjusted quarterly for the full percentage increase in the CPI. Canada Pension Plan benefits are increased annually to compensate for the yearly increase in the CPI. In Ontario benefits from the GAINS program, while not indexed themselves, are based on an annual guarantee which is increased to reflect the federal adjustments. Pre-retirement adjustment in the Canada Pension Plan is achieved through a form of wage indexing, in which contributory earnings are updated at retirement to reflect increases in the annual earnings "ceiling" (YMPE), currently escalating at 12-1/2 per cent a year.

## Employment Pension Plans

Most employment pensions, in both public and private sectors, have received some post-retirement adjustments to help counter the effects of inflation. The recent controversy over federal public service pensions, however, has obscured the nature and the extent of these adjustments - especially in the public sector - and it is worthwhile examining what is actually taking place.

### Post-Retirement Indexing

Statistics on indexing practices are far from complete. In analyzing inflation protection we can consider "full indexing," i.e., increases which are made automatically each year in tandem with the Consumer Price Index; "partial indexing," i.e., increases which are made automatically each year to the extent of a portion of the CPI increase; and "ad hoc" adjustments for which there is no automatic provision. Because official statistics do not take into account ad hoc adjustments, the lack of indexing revealed by those sources is by no means conclusive. Several studies show that employers in both public and private sectors have been making some adjustment to pensions in payment. Ontario Hydro, the Ontario Workmen's Compensation Board, and the Toronto Transit Commission are examples of public sector employers who have made ad hoc adjustments. The Financial Executives Institute, in a 1978 survey, revealed that 56 per cent of the employers in the survey made some adjustments and of these only 5.4 per cent were done by an indexing formula.(16) A study undertaken by the Financial Executives Research Foundation in 1977 showed that of fourteen typical private sector pension plans only one - in the oil and chemical field - was fully indexed to the CPI. Four allowed for ad hoc adjustments, two more raised benefits by a percentage of the increase in the CPI, one small employer had no adjustment provision at all, and the rest provided for a 2 per cent increase in the amount of the pension benefit or a flat dollar adjustment. Adjustments were not necessarily made annually, and in several cases varied with the number of years since retirement.(17)

The statistics show that automatic indexing provisions are not prevalent, and in fact are almost non-existent for plans outside the public sector.

Pension Plans in Canada 1978 shows that automatic post-retirement indexing was provided by 214 plans covering 32 per cent of members of all plans.(18) Most of these members were in the public sector. Less than 5 per cent of members in the private sector were in plans providing for automatic indexing. Automatic indexing tied to the full CPI increase was provided mainly by plans under federal jurisdiction. There were no Ontario public service plans in this group.

In Ontario, 1978 statistics for plans regulated under the Pension Benefits Act show that in the public sector 89.9 per cent of the plans

having 41.6 per cent of the plan members and in the private sector 99.1 per cent of the plans having 95.2 per cent of the plan members had no provision for automatic escalation of any kind. Table 4 shows the incidence of automatic indexing provisions in both the private and the public sectors in plans subject to the Ontario Pension Benefits Act.

Only three plans in the Ontario public sector, the Public Service Superannuation Fund, the Teachers' Superannuation Fund, and Ryerson Polytechnical Institute, had automatic indexing in excess of 4 per cent of the increase in the CPI; in each case there was an annual "cap" of 8 per cent, with a carryover of any excess to succeeding years. These three plans represented 34.1 per cent of all public sector plans and 46 per cent of plan members in the Ontario public sector. In the private sector only three plans had automatic indexing in excess of 4 per cent, and those plans covered only 2,696 plan members.

From these statistics it is clear that automatic full indexing is not nearly as prevalent as the debate over federal public servants' pensions would lead one to believe. Nor are any clear lines drawn between the public sector employees as the "haves" and the private sector employees as the "have-nots." In general though, an unlimited commitment to indexing is to be found only where payments can be made ultimately from taxes. The Superannuation Adjustment Fund techniques used by both the federal government and the Ontario government for their plans mask the source of payment somewhat, but in each case there is the implicit possibility of a call on consolidated revenue if the fund runs out of money. Where spending restraints are exercisable through budget approval indexing is either on an ad hoc or uncommitted basis as for Ontario Hydro, or is not provided at all as in the Hospitals of Ontario Pension Plan. Proposed amendments to the Federal Public Service Plan indicate there has been a recognition of the cost implications of indexing and perhaps some reconsideration of the need for full automatic indexing.

#### Pre-retirement Adjustments

Although the use of indexing techniques for benefits before retirement is uncommon, it will be clear from the earlier discussion of employment pension plans that means are available by which the eventual pension may be reasonably related to pre-retirement income. As a rule it is not considered necessary to refer directly to movements in the Consumer Price Index, but rather to relate the benefit credits to wage and salary levels during some recent period in the member's employment. Whatever the actual pension formula - wage-related or a flat benefit - any inflation protection depends on the degree by which benefits "earned" year by year are eventually improved so that they reflect rising wage levels and, by implication, consumer price increases. A final or best average earnings formula gives a measure of pre-retirement inflation protection. Nearly all public sector plans use a five-year average for calculation of pension benefits, and many similar formulas



Table 4  
Automatic Escalation of Benefits, by Sector, Ontario, 1978

	Public sector			Private sector		
	Plans	Members		Plans	Members	
	(Number)	(Per cent)	(Number) (Per cent)	(Number)	(Per cent)	(Number) (Per cent)
No provision	107	89.9	266,930 41.1	8,473	99.1	972,692 95.2
Percentage increase in Consumer price index to yearly maximum of:						
2 - 2.4	1	.8	348 -	25	.2	36,955 3.6
2.5 - 2.9	-	-	-	-	-	-
3 - 3.4	-	-	-	20	.2	4,713 .4
3.5 - 3.9	-	-	-	-	-	-
4	-	-	-	2	-	4 -
Over 4 per cent	3	2.5	215,956 33.3	4	-	2,777 .2
Percentage increase in average industrial wage						
Under 2	-	-	-	1	-	3 -
2 - 2.4	-	-	-	2	-	24 -
2.5 - 2.9	-	-	-	1	-	45 -
3 - 3.4	-	-	-	-	-	-
3.5 - 3.9	-	-	-	-	-	-
4	-	-	-	-	-	-
Over 4 per cent	-	-	-	-	-	-
Other(a)	8	6.7	164,780 25.4	20	.2	3,670 .3
Total	119	100	648,014 100	8,548	100	1,020,883 100

a Federal plans subject to the Ontario Pension Benefits Act.

Source Statistics Canada, "Pension Plans in Ontario 1978," unpublished.



are found in the private sector. Recently there has been a trend towards updating career average plans to reflect current earnings. Benefit amounts in flat dollar plans, most often found in the unionized sector of industry, are customarily increased as collective agreements expire and are renegotiated. With money-purchase plans employers may increase their contributions by lump sum or other additional contributions, but these have been less likely to match the improvements in other types of plans. Regardless of plan type, there are unlikely to be any provisions for adjusting vested pension entitlements between termination and normal retirement age.

### Other Arrangements

Private retirement arrangements generally have no mechanism for responding to inflationary pressures. RRSPs make no allowance for either pre-retirement or post-retirement indexing. Escalating annuities may be purchased from some insurance companies in Canada, but monthly payments are reduced initially to offset the higher benefit in later years.

We have seen that inflation has created a demand for some degree of retirement income protection. How various sectors in society have reacted to that pressure is clearly related more to their concern with the substantial costs involved than with any question regarding the desirability of maintaining the pensioner's purchasing power.

### THE COST OF INFLATION PROTECTION

There is general agreement that inflation redistributes wealth. Some win from inflation; others lose. The prime losers are those living on fixed dollar incomes, and the majority of them are retired. There is no doubt that to redistribute wealth back to the retired will mean a loss to others in society, for society's wealth is not infinite and it is certain that protecting some from inflation will have a cost. The question is who is to bear that cost. There are really only four possibilities:

- the retired person,
- the active worker,
- the employer and therefore indirectly the shareholder and the consumer, and
- the government and therefore the taxpayer.

### The Individual

If society decides the individual should shoulder the burden, how much cost should he be required to bear?

- All until his resources are reduced to a minimum floor determined by society?
- All except for the retirement income received from an employment pension?
- All except for some standard above the minimum income floor based on a need to maintain an achieved lifestyle in retirement?

At present, the individual bears the costs of inflation at two different times - first as an active worker and later as a retired person. The cost is borne in different ways.

### The Active Worker

The Canada Pension Plan is one scheme with both pre-retirement and post-retirement inflation protection: pre-retirement because the pension increases with the increase in the average industrial wage(19); and after retirement because the pension benefit is increased annually in line with increases in the Consumer Price Index. Because the plan operates on a virtual pay-as-you-go principle, those now contributing pay for the benefits to those who are now entitled to them. The implied assumption is that the scheme will continue indefinitely so that those paying in today will receive benefits tomorrow. Therefore, the cost of both pre-retirement and post-retirement indexing is borne by today's active workers. As long as the plan operates in perpetuity and the contribution rates are reasonable, this intergenerational payment arrangement seems acceptable. The Commission's projections of future available funds and beneficiaries did not show that the scheme would be unduly burdened in the future to the point that its continuance would be threatened, even acknowledging the expected increase in dependency ratios after the year 2000. However, to increase benefits substantially could place an undue burden on active workers.

Similarly, public sector employment pensions that are indexed through supplementary adjustment plans and to which employees and government employers make fixed contributions are essentially funded on a pay-go basis. Active workers pay for the indexing of pensions to retired workers to the extent of their required contributions. If the set contribution rate does not meet the cost of the contributions, either the active workers (with the government) will bear the cost of increased contributions or run the risk of not receiving any indexed benefits in retirement.

A more subtle potential cost to active workers comes with proposals to "split" the pension fund between active and retired workers. Various ways have been suggested for effecting the split but, with the problems of actuarial forecasting of future interest rates and liquidity, active workers could find the security of their fund impaired to create a way of indexing the pensions of the retired worker.

Having thus shouldered the cost burden for those in retirement, the active worker assumes a different cost when he or she retires.

### The Retired Person

Traditionally, as we have seen, the retired individual on a fixed income has incurred a loss of purchasing power from not sharing in the "productivity dividend" and from inflation. If that loss were to be offset, the individual had to bear that cost by drawing on accumulated savings, such as cash, investments, or capital appreciation of a house. Recently, however, faced with severe inflation and a serious drain on their savings, pensioners have begun to fear that they will outlive their savings and have begun to cast around for an external answer to their problem.

### The Employer

If society decides the employer and the individual are to share the burden, how much of the cost should the employer bear?

- All related to pension income paid to the employee?
- Some related to pension income?
- Some as the employer deems advisable?
- None?
- Some or all related to pension benefits earned before retirement as well as after retirement?

Much pressure has been exerted on employers with pension plans to follow the lead of the federal and Ontario governments and index the pensions of their retired employees. Federal government employees defend their indexed pensions by arguing that these should be made available by all employers with pension plans. The size of many pension funds, the fact that employee contributions are involved, and the belief that high interest rates benefit the employer-sponsor, all tend to encourage retirees to expect employers to assume responsibility for the worker's well-being in retirement.

However, for those already receiving pensions, the employer is keeping the contractual obligation. In the case of a defined benefit plan, the promise is to pay a fixed monthly amount in retirement based on salary and service; and in a money-purchase plan, to pay an annuity based on accumulated contributions. The employer's promise is fulfilled when the required monthly payments are made to the employee in retirement. Where the employer's promise is not extended to maintaining the purchasing power of pensions in retirement, the cost of additional post-retirement payments would have to be met by additional funding.



The existing fund is the security for the fulfilment of employer's promise to all pensioners, now and in the future; to increase payments without additional funding could place in jeopardy the security of all the plan benefits.

Some employers however have made ad hoc adjustments to pensions being paid. When ad hoc improvements are made their cost is borne ultimately by shareholders or consumers. Similarly, if the employer adopts a regular indexing policy the cost becomes a continuing business expense. Still, unless such payments are made on a regular basis, it is questionable how well they answer the pensioner's need for assurance of adequate retirement income.

As things now stand whether or not pensions of the currently active employees should be indexed in the future is determined by employers and employees in the usual bargaining processes. For pensions already in payment the bargaining process is less likely to come into play. Since employment pension plans are set up voluntarily and can be wound up at any time by the employer, legislation to ensure indexing would first have to require employers to continue their plans. But since not all employers have pension plans, the legislation would not affect all employers and so would not benefit all employees.

#### The Government

Finally, how much of the cost of protecting the individual should be assumed by the government?

- None except to maintain an individual's basic needs?
- Some, to the extent of maintenance of pension income in retirement?
- Some, to the extent of maintaining some pension income in retirement related to a pre-retirement standing of living?

If government is to assume some role in allocating the costs of inflation protection, two other questions arise as to the use of governmental authority:

- Should some employers be forced by government to protect some members of society?
- Should government protect only those who have certain kinds of income in retirement?

It is sometimes argued that inflation is government-caused and government-controlled and therefore any inflation losses should be offset by the government. Or it is argued that because the government



is a winner from inflation through the tax system, it has an obligation to compensate some of the losers.

The use of government authority to preserve purchasing power can be rationalized on two grounds. The first is that the government is the last resort for protection; the second imputes an obligation to government to guarantee a certain standard of living for the retired related to a pre-retirement standard of living.

If inflation erodes purchasing power to the point where the individual is unable to maintain a minimum standard of living, society may agree that government has an obligation to intervene. The Guaranteed Income Supplement operates on this principle. Amounts payable under GIS are automatically indexed quarterly to the Consumer Price Index. If on this principle proper government involvement in inflation protection is limited to ensuring a minimum standard of living, individuals retain the prime burden of the loss of purchasing power, assisted perhaps by employers.

Indexing of OAS pensions and CPP benefits does not conform to the minimum level approach. Both programs are automatically indexed and neither is based on need. The result is that the government protects some individuals by lessening the drain on their savings. It can, however, be argued that OAS and CPP form part of a floor or protection along with the GIS and therefore should be indexed.

If however the government's responsibility is to guarantee a larger measure of protection on the ground that the individual has a right to be protected, not just for basic needs but so that a standard of living is maintained into retirement, the individual would not be expected to use personal savings to compensate for losses from inflation. Most schemes which at present reflect this principle in full are those operated by the government as an employer. It might be inferred from this fact that taxpayers are willing to assume the cost of inflation protection for only a limited group of the retired.

#### POSSIBLE SOLUTIONS

From this discussion it is clear that the losses suffered in inflation are already distributed across society in various ways. The individual is the prime loser, although employers and governments have assumed some of that burden. The pension debate is really concerned with whether more of the burden should be removed from the retired person, and if so, how. Let us look at some of the possible answers to the question.

## The Status Quo

At present, government, the individual, and in some cases the employer share the burden of loss of purchasing power of retirement income. OAS and GIS are fully indexed to the CPI and the cost is borne through general tax revenues; the fully-indexed CPP is funded through payroll taxes (contributions). Through collective bargaining or employers' goodwill, a retiree fortunate enough to have a pension may receive some increases to a pension in payment. Protection of income from other sources is left to the individual, whose investments may benefit from the higher nominal rates of return during inflationary periods.

We have seen from our discussion of the net replacement ratio that "available income" of those at the lower end of the scale for the most part is being fully replaced or, indeed, is even higher than pre-retirement net earnings. The components of the replacement income are OAS, GIS, CPP, income tax relief resulting from indexed personal exemptions, tax credits that increase with rising rents and property taxes, and relief from payment of OHIP premiums. In this fashion, the replacement income of those who earned the minimum wage is fully protected from price increases. Incomes up to the level of the Average Industrial Wage are substantially protected. Not fully protected are incomes above these levels, unless the pensioners receive some additional protection through employer pension plans. Clearly, if the government is expected to provide only a minimum floor of income protected from inflation, this is being done now, and the individuals whose incomes are above this "floor" level are left to protect themselves.

What applies at the adequacy level however, does not satisfy the goal of those who seek to continue a reasonable relationship between retirement and pre-retirement income. The best case can be made for indexing of pension benefits for those whose post-retirement income ranges from the level of those in receipt only of fully indexed government benefits to, say, \$20,000 a year. Those with incomes above this level may be considered to have had the opportunity to save during their working lifetimes to maintain a pre-retirement living standard. Those 65 and over with retirement income in amounts up to \$20,000 a year represent the majority of pensioners. Many of them were able to supplement retirement income from government plans by negotiating an employer pension or by saving through RRSPs, investments, or a house. However, they face the prospect of a rapid erosion of their purchasing power - with 10 per cent inflation, a cut of about 50 per cent in seven years - so that to maintain their standard of living in retirement they must dip into their capital. The alternative is to drop their standard of living gradually to the level of those who are fully protected by the indexing of government benefits.

Some argue that the position of this income group is not as difficult as may first appear - that since about half the purchasing power

of a \$20,000 income is already fully protected for a married person, the drop will be less dramatic than 50 per cent in seven years; and the reduction will be offset to the extent that nominal rates of return on investment income reflect inflation. Furthermore, it is argued, pensioners need never fear destitution since the minimum floor provided by government always maintains the same level of purchasing power. Finally, some believe that needs may decline in retirement, or that the present high inflation rate is not likely to persist. According to this reasoning, only the purchasing power of the income floor level provided by government programs need be maintained, and no further indexing should be required by legislative measures.

Opposed to that viewpoint is that which favours steps to protect the purchasing power of retirement income in order to preserve some link with a pre-retirement standard of living; and here attention is concentrated on the indexing of employment pension benefits. Automatic indexing of the pensions of federal and Ontario public servants and teachers has provided an enviable goal. As a result we have seen a wide range of proposals, from direct government intervention and coercion of employers to various degrees of incentive and subsidy.

#### Direct Government Intervention

##### Mandatory Pension Indexing

Advocates of legislation requiring indexing would have the employer expand the benefits already promised in a defined benefit plan or increase the amount in a money-purchase fund to provide a larger annuity. It is argued that the employer's promise to pay a pension carries with it an obligation to provide benefits that will continue to bear some relationship to earnings just before retirement so that the person's standard of living may be maintained. Such legislation might require that:

- all defined benefits be calculated on a final average basis, with averaging over a small number of years - say 3 or 5;
- deferred life annuities for terminated employees be escalated annually to normal retirement age;
- pensions in payment be automatically indexed annually to the increase in the average industrial wage;
- pensions in payment be automatically indexed annually to all or part of the annual increase in the Consumer Price Index. Partial indexing might utilize an annual maximum of from 4 to 8 per cent, or might apply only to price increases above 2 or 3 per cent per year;



- some part of the pension be indexed up to a predetermined level to benefit those at the lower end of the income scale; for example, 8 per cent on the first \$200 to \$300 per month and 4 per cent on the balance.(20)

There are important objections to all these proposals. All would mean a mandatory additional cost to the employer, although a "cap" on the amount of annual indexing would limit that liability. However, employers establish pension plans voluntarily and may wind them up at any time. Before indexing could be assured therefore, legislation would also be required to oblige employers to continue their plans. In the result, since not all employees have employment pension plans, government would be legislating inflation protection only for some employees while adding directly to the costs to be borne by all members of society as consumers.

#### Indexed Bonds

Another approach involving direct government action comes from James Pesando, professor of economics with the Institute of Public Policy at the University of Toronto. His assessment of the economics of inflation has led him to conclude that the nature of the problem is such that only governments can deal with it effectively. He originally proposed that the government should issue or require corporations to issue "indexed bonds" on which nominal rates of return would vary with rates of inflation in such a way that the transaction for both lender and borrower would be neutral. Pension funds would then be able to invest in these bonds and maintain real rates of return in the face of inflation, and in turn would be able to provide fully indexed pensions without concern for an incalculable future liability.

Pesando himself soon recognized that this solution might not be practical:

"Clearly, the Federal government (for example) could elect to issue index bonds, but certain problems would immediately arise. The fundamental dilemma is that if the Federal government were to make index bonds available on a sufficiently wide scale to effectively enable plan sponsors to provide indexed pensions, then the potential impact on Canadian financial markets might be dramatic. If, on the other hand, the Federal government were to make index bonds available on a more modest or gradual scale, so as to minimize the impact on the Canadian financial system, the capacity of plan sponsors to provide indexed benefits would only gradually be enhanced." (21)

If the effect on the Canadian financial markets were a wholesale flight from equities to debt securities, it would indeed be dramatic and undesirable for the Canadian economy.(22)



## Government Inflation Insurance

Pesando then moved from his proposal for indexed bonds to suggest government-guaranteed inflation insurance:

"Sponsors of defined benefit plans must purchase the requisite annuities on the basis of a real rate of interest. Only the Federal government is likely to be able to underwrite the risks associated with unanticipated inflation. These two points form the basis of a proposal - whereby the Federal government would provide inflation insurance against the possibility that inflation might diverge from the expected rate built into market interest rates at the time that an annuity is purchased."(23)

In brief, the proposal would work as follows:

- Employer pension plans would be funded on the basis of real rates of return.
- When an employee retired, the employer would purchase an annuity from an insurance company for the required benefit plus full indexing at anticipated rates of inflation over the life expectancy of the pensioner. The cost of the annuity would be funded by the employer at real rates of return in his pension fund and therefore the monies would be available in nominal dollars to purchase the indexed annuity.
- If during the course of payment of the annuity inflation were to rise above the anticipated rate, the federal government would pay to the insurance company the cost of indexing the annuity above the inflation already anticipated. If, however, the inflation rate were to fall below the anticipated rate, the insurance company would pay to the federal government the saving from lower-than-anticipated inflation. Over the course of time these adjustments should cancel out, as inflation should be neutral in the long run.

One difficulty with this proposal is that to fund on a real rate of return involves correctly forecasting pre-retirement inflation rates so that contributions will be high enough when added to nominal returns on investments to generate sufficient "real" monies to purchase the annuity at retirement. As well, Pesando acknowledges that any windfall gain the employer might otherwise expect from low annuity rates when inflation is high would no longer be available to offset experience deficiencies (shortfalls) caused by inflation.

Pesando acknowledges that the employer would have to assume a higher cost, but suggests that "there is no reason, however, that the higher costs should not be shared with employees, perhaps in the form of lower increases in current wages than would otherwise be the case."(24)

How acceptable this cost-sharing would be could only be determined through negotiations with employees. To the extent employees were not prepared to share the cost, the employer would have to pay. But to alter existing funding arrangements in employment plans to a real rate of return basis would be extremely costly. When employers are already complaining of the cost burdens arising from inflation, it is unlikely that this scheme could be used for indexing pension benefits already accrued and would therefore be of no assistance to those already retired or who are well into working careers. The scheme also entails the additional purchase of annuities from insurance companies with the federal government providing a reinsurance fund. Many of the larger plans at the present time do not purchase annuities but make pension payments directly from the fund. To channel all pension payments through insurance company annuities, with additional commissions and administrative expense, would probably not be greeted with enthusiasm by these employers.

While Pesando claims that the cost of the proposal to the government should even out in the long run, Donner and Lazar argue that a permanent increase in the average level of inflation would result in a continuing government deficit to fund the insurance scheme, and that short-run implications for government payouts could be serious:

"To provide an example of where big transfers could occur from the fund to the insurance company, consider the following. In 1974 long-term government securities were yielding 8.87 per cent, while the actual recorded rate of inflation was 10.9 per cent. If a fixed real yield was assumed to be 3 per cent, then the expected rate of future inflation at that time would have been 5.5 per cent. In fact, the rate of inflation in 1976 was easily double that expectation and in 1977 was considerably in excess of the presumed rate. Granted this problem could be minimized over a long enough period of time, but the short-run implications could still be very severe."(25)

A general criticism of both Pesando's proposals is that they require direct action by the government to provide inflation protection for only a selected group in society - those with employment pension plans. The second proposal seems even more restrictive as it would be limited only to those in defined benefit plans. His second proposal cannot apply fully to money-purchase plans since there is no mechanism to provide pre-retirement real rates of return. While an escalated annuity could be purchased at retirement from a money-purchase plan, the cost of the expected inflation calculated into the purchase price would result in a much lower initial monthly payment and would not likely be attractive to the annuitant.

## Increase in Canada Pension Plan Benefits

A further government measure that is often proposed and should be considered is an increase in Canada Pension Plan benefits. Since protection is limited to specific groups under Pesando's proposals, expansion of the government scheme that is already providing full indexing to the CPI is more attractive. Indeed, there are strong arguments for doubling Canada Pension Plan benefits to provide 50 per cent of earnings up to the level of the average industrial wage. Along with the fully indexed OAS, this would fully protect between 60 and 65 per cent of the pre-retirement AIW from inflation. The labour movement has strongly advocated such a step.(26)

A similar approach is recommended in the Cofirentès Report (1978) on the Quebec Pension Plan. Under that plan retirement benefits would be increased from 25 per cent to 50 per cent of earnings up to half of the YMPE plus 25 per cent of the balance, making a total benefit based on 37-1/2 per cent of the maximum YMPE. Full indexing of this amount with the other fully indexed programs would raise overall protection against inflation above the present government-guaranteed floor.

Both proposals, as far as they relate to indexing, have considerable merit in that groups which would benefit from this type of direct government intervention represent nearly 100 per cent of the working population of Canada. However the Commission does not favour increasing the benefits from the CPP for the reasons set out in Volume V of the report.

## Indirect Government Intervention

Employment pensions exist because of voluntary acts by employers and agreements made through the collective bargaining process. While many employers, occasionally or even regularly, make "ad hoc" adjustments in pension payments to compensate pensioners for some of the effects of inflation, almost none has been prepared to incur the costs associated with automatic indexing, even with limits. Some critics, however, do not accept ad hoc indexing as equitable or sufficient, and advocate legislation to require employers to adjust pensions for inflation.

A strong argument for legislative action is based on the "excess interest" theory, which may be simply described: If the interest rate assumed in the pension plan is 6 per cent and the actual rate of return to the fund in the year is 9 per cent, the employer is said to have made a gain of 3 per cent from inflation. That gain should then be used to index benefits rather than to reduce employer costs.

In support of this proposal, the Cofirentes Report recommended(27)



"That those completely determined pension components, set up on behalf of an active or retired participant, be increased annually by a percentage which corresponds to the excess of the return provided by the pension plan's investments over the interest rate assumed at the time these investments were acquired." (Recommendation 38)

"That, as a corollary to (Recommendation) R-38 if the pension components have been determined by discounting a certain return, and if the plan is afterwards revalued with a higher interest rate, the surplus thus released be applied in its entirety to increase the pension set up for the participant, with only the excess with respect to the new rate being applied towards future increases." (Recommendation 39)

"That the interest rate used in application of R-38 and R-39 be that used at the time of the last actuarial valuation preceding the publication of the Committee's report." (Recommendation 40)

"That the Quebec Pension Board establish a maximum interest rate that can be used in the determination of future components of completely determined pensions. Ideally, this rate should correspond to the average, real rate of return of the economy." (Recommendation 41)

"That the interest rate established by the Quebec Pension Board also be applied in the valuation of pension components under a final salary plan or under any other plan once the pension is completely determined (at the time of cessation of participation, of retirement, etc.)." (Recommendation 42)

The Cofirentes Report recognized that there would be difficulties with this approach if there were no control over the interest rates assumed in the plan and ultimately recommended that the rate be fixed at the "real rate" of return which is usually considered to be about 3 per cent per annum.

The concept is initially appealing because it does not appear to cost much, if anything. In this sense the term "excess interest" is misleading. There is, in fact, a very real cost to the employer who in the past has used gains from higher interest rates and capital appreciation to offset the cost of improved benefits and costs resulting from escalating salaries in final pay plans or from stock market drops such as those in 1973 and 1974. There is no mention in the Cofirentes Report of any offset for losses. Nor does the theory acknowledge the difficulties of achieving real rates of return in pension funds or the fact that investment in pension funds is based on long-term strategies to meet long-term liabilities and not on a year-over-year approach.



Dr. Phelim Boyle elaborated on this point in a paper included in the Hall Report on the Railway Pension Plans:

"It is tempting to suppose that the additional liabilities could be offset by increased earnings on the assets of the fund. One of the main problems in the last few years has been caused by the depressingly poor investment performance. Over the last year, many plans have not even achieved a positive rate of return (on a nominal basis). These additional investment earnings are just not there. Consequently, some plans may have difficulty meeting their funding obligations under the various Pension Benefits Standards Acts."(28)

The excess interest approach has been refined by introducing the idea of separating the pension fund of active workers from those of the retired. When an employee retired, the employer would set aside the amount required to buy that person a life annuity in the amount of the promised pension benefit at the then prevailing rate of interest reflected in current annuity prices. The money would not actually be used to purchase an annuity contract from an insurance company, but would be set aside in a "pensioners' reserve fund" into which the annuity amounts for all pensioners would be transferred. This fund would then be invested in the fashion required to meet its specific obligations - which could be different from the active workers' fund. Any interest earned on the pensioners' reserve fund above the interest rate assumed for the annuity, and after a reserve for losses had been set aside, would be distributed among the pensioners on some equitable basis. It is assumed that as inflation rises, nominal interest rates rise and therefore there would be a gain in nominal terms that could be added to the pension amounts. There would be no additional cost to the employer once the money to buy the annuities had been set aside, and pensioners could thus be protected to some extent from inflation.

This proposal, however, must face the complexities of actuarial funding. To segregate a fund into two parts would involve assumptions about mortality, inflation, and interest rates. These decisions are not made once and for all, but are required as each employee reaches retirement age. Regulation would be essential to ensure adequate funding for the active workers and for the pensioner.(29) The procedure would not be comparable to the situation where monies are actually paid out to purchase an annuity from an insurance company where a number of factors, such as commissions, required reserves, and competition, affect the price of the annuity, and the employer's liability to the pensioner ceases entirely.

A more sophisticated version of the excess interest approach, and similar in its funding aspects to Pesando's inflation insurance, is the requirement that all defined benefit plans be funded using the real rate of return in the interest assumption. Pesando, in his latest refinement of the government inflation insurance scheme, proposes that

the employer isolate the amount required to purchase an annuity equivalent to the pension benefit at a zero rate of inflation. This amount in an inflationary climate of, say, 7 per cent would then be used to purchase an escalated annuity that would increase at 7 per cent per year. Theoretically, the cost of the escalated annuity and the sum isolated by the employer would be the same, disregarding administrative expense. In this way the pensioner would be protected from the expected 7 per cent rate of inflation. If inflation turned out to be in excess of 7 per cent, the pensioner would lose to the extent of the excess over 7 per cent unless the scheme were coupled with government inflation insurance discussed above. If inflation were less than 7 per cent, the pensioner - or the insurance company, depending on the terms of the contract - would win.(30)

Pesando recognized two problems to implementing this scheme, both similar to those for government inflation insurance. The first is to determine the real rate of interest as the basis for funding. Historically the rate has varied between 2 and 3 per cent. If the forecasts were not accurate, the fund might face shortfalls that would have to be satisfied in "real" terms. The employer could not hope for any "inflation dividends" to assist with this cost. The second problem is for the employer to actually achieve a real rate of return on fund investments. In the early 1970s many pension funds were experiencing negative rates of return. If equities were not able to earn the real rates of return required, then fund managers might be forced to move to debt capital financing. Pesando notes that it might be necessary to reform the tax system in such a way that it would be neutral to inflation so that common stocks might act as a hedge against inflation. (31)

A third and even more important difficulty is that many plans now in force are funded on a nominal basis. To convert such plans to funding on a real rate of return basis would in effect force the employer to assume the full cost of indexing both the pension accruals of active members - few of which are now fully funded on a nominal basis - and the pensions already being paid. This would result in a greater cost to employers than would automatic indexing, which most employers have already shown they are reluctant to assume. If funding were based on real rates of return, an element of the productivity dividend of the economy might be included, providing inflation protection beyond that measured by the Consumer Price Index.(32)

Although his scheme relates specifically to defined benefit plans, Pesando points out that money-purchase plans to some degree reap the excess interest benefit, because the money-purchase fund will grow with higher nominal rates of return to accumulate higher nominal amounts of money at retirement for purchase of an annuity of a higher fixed income amount:

"For parallelism, the members of defined benefit plans could be given the option of a higher fixed-income annuity rather than a lower but escalating one. Alternatively, to reflect the fact that high nominal rates indicate the expected decline in the real purchasing power of a fixed-income annuity, members of money-purchase plans could be required to purchase escalating - rather than high fixed-income - annuities if nominal interest rates embody a substantial inflation premium."(33)

Presumably this could extend to annuities from RRSPs as well as money-purchase plans. Note too that all excess interest techniques could apply equally to deferred life annuities earned by terminated employees.

#### The Participating Annuity Option

The Commission believes that the excess interest approach could be utilized on a limited scale, to provide a measure of inflation protection not only for those in employment pension plans but also for those in RRSPs and with other savings which culminate in the purchase of an annuity. This method is basically a right of election for a participating annuity, i.e., an annuity which guarantees a basic monthly payment increased by any additional interest earnings on the capital above that required to pay the basic amount. The basic amount would be lower than that provided by a non-participating annuity, and therefore the retiree would be guaranteed a somewhat lower monthly pension. To achieve the right of election the Pension Benefits Act would have to be amended to give a retiring employee the right to elect a participating annuity at retirement. With such a provision there would be a need for regulations requiring plan sponsors to separate from the pension fund for active members and retirees who do not elect a participating annuity, the amounts required to provide pensions to retired members who elect a participating annuity. The new fund thus created could then be invested in a way compatible with the needs of the retired group, and any income above the requirements for the basic pensions would be distributed among the pensioners. Interest rates used in determining the amount of the new fund would have to be controlled by the Pension Commission of Ontario to ensure a fair division between the two funds.

In order to continue the operation of the present pension concept it would be necessary to have the employer continue to guarantee the basic pension (the guaranteed amount of the participating annuity) to the retiree. Therefore if earnings on the retired lives fund were to fall below the amounts required to secure the basic contributions, the employer would be required to make additional contributions into the participating annuity fund. In addition the employer would bear the effect of any mortality gains or losses in the retired lives fund.

In the larger plans the employer usually provides the pension payments out of the pension fund. However, where the pension plan



sponsor chooses to buy an annuity from an insurance company to satisfy its pension obligation the retiring employee would also have the option of choosing a participating annuity. Regulations under the Pension Benefits Act would have to provide that the initial basic or promised pension resulting from the plan formula on a participating basis would be the same regardless of whether the payment were made from a retirees' fund or by an insurance company. Therefore any additional cost arising from insurance company charges would have to be borne by the employer.

The Commission sees the participating annuity as an inflation protection for retired pensioners. To be successful it will require education of employees in the nature of the option available. The employer would be deprived of the "inflation dividend" on that part of the pension fund required for the retired lives participating annuities. But if the option is successful and provides increased monthly payments, if nominal interest rates rise with inflation, there will be less pressure for indexed or ad hoc adjustments. Except for increased cost to the employer arising from the loss of any excess interest on the retired lives participating annuity fund, the option of a participating annuity preserves the status quo and leaves inflation protection to the individual. The same option should be available to participants in RRSPs where the guarantee of the basic monthly payment is part of the contract with the insurance company issuing the annuity, and also for annuities purchased under the mandatory plan discussed in detail in Chapter 12. The scheme therefore has the virtues of being optional for employees and universal in its application to several forms of retirement income.

### Collective Bargaining

If one favours a position of minimal government interference, it is necessary to assess what pressures will be brought to bear in other ways to bring about inflation protection. As we have seen, some private-sector employers have made allowance for increases in pensions. Four courses have developed:

#### 1. Ad hoc Adjustments

Employers favour this approach because the cost can be calculated before the liability is incurred.

#### 2. Improving Benefits by Negotiation

This is the usual approach when a pension plan is part of a collective agreement and is expressed in terms of flat dollar benefits of, say, \$10 a month for each year of service. The amount of basic monthly benefit is renegotiated with the collective agreement to keep pace with cost-of-living increases. While primarily a method of pre-retirement adjustment, current pensions are frequently increased at the same time.



### 3. Adjustment Funds

Separate funds may be set up to provide the indexing adjustment, usually with employer and employee contributions. This method is found in the public sector.

### 4. Update of Career Average Plan or move to Final Average Pay Plans

This change serves as a pre-retirement adjustment and keeps pace with rising wages.

These approaches, and others which may be developed may result from the operation of the collective bargaining process. If this is to be encouraged as an answer to inflation protection it is also necessary to ensure that such protection will in fact be provided. Given the original promise of the employer to provide a defined amount at retirement, and assuming that any employees' contributions have been fair in relation to the benefits and the actuarial funding assumptions, it follows that employees are not entitled to make any additional claims against the pension fund. Unless the plan is in a surplus position, its solvency will be undermined by any benefit increase without the necessary additional funding. If indexing adjustments are paid out of the pension fund, there may well be a shift of funds from the eventual basic benefits of active employees in favour of those who have retired.

Under the Pension Benefits Act (Reg. 654, 2a) an "escalated adjustment" - that is, one based on an index - need not be prefunded; but its current cost must be met by additional current payments into the plan. If the plan is wound up, unfunded escalated adjustments must be cut back before any reduction of basic benefits is effected. This exception to the normal funding rules (actually a pay-as-you-go feature) may be justified on certain practical grounds: it recognizes an urgent and presumably temporary need for some flexibility in pension funding; it does not jeopardize solvency related to the basic plan benefits; and it avoids the question of how an indeterminable future expense should be measured for purposes of pre-funding. An obvious drawback is that the indexing commitment itself, unlike the basic pension promise, is unprotected by the regular funding requirements and therefore is valid only so long as the employer remains in business and maintains the required contributions. Unless employees and especially pensioners understand the essential lack of security for index-based adjustments, they may be severely disappointed at some future date when a significant portion of their benefits is eliminated.

Although recent pressures on pension funding have arisen from a combination of the move to final average earnings plans, rapidly increasing salaries, and poor investment returns, similar problems are found in updated career average plans and flat dollar plans. In the latter, increases in benefit levels are commonly negotiated when

the collective agreement is renewed. Because the amount of benefit improvement in either case is not an "escalated adjustment" it must be reflected in the funding schedule as part of the long-term promise. However, whatever degree of inflation protection is achieved in this way may be illusory. In the event of a wind-up before the unfunded liabilities have been met (i.e., up to 15 years following a retroactive improvement) a substantial part of the promised benefit may suffer from the same fate as an "escalated adjustment" in order to use the assets as fairly as possible. The potential weakness in funding where new unfunded liabilities are created every two or three years is well-known to the supervisory authorities, but is generally unknown to plan members until they are affected by a plan closing or other crisis which terminates the pension plan. Pensioners stand an even greater risk where either indexed or ad hoc increases have been granted or negotiated.

The Superannuation Adjustment Funds of the Ontario and federal governments are similarly capable of misleading the employee or pensioner. Operated on a strict pay-go basis, neither is assured support from the Consolidated Revenues of the government should there be insufficient funds. In the case of Ontario's Public Sector Superannuation Adjustment Fund, the contribution levels - 1 per cent by employers, 1 per cent by employees - are fixed under the Act until January 1, 1981, regardless of how the fund fares.(34) After that date, contribution rates will be determined from time to time by a review committee and presumably will change as required. This situation raises the question whether public sector employment plans should follow the funding practices established for private sector plans. In Ontario both sectors are regulated by the Pension Benefits Act, and it would seem reasonable that any rules for funding of adjustments should apply to both.

Voluntary adjustments through the collective bargaining process are also subject to some particular disincentives. The first of these arises from the interaction of the government floor programs and employment pensions. The problem is stated by the Ontario Advisory Council on Senior Citizens:

"The combined effect of GIS and GAINS produces a disincentive to the indexing of private pension benefits in that any recipients of GIS and GAINS would not benefit from moderate indexing of an employer's pension benefits; he would receive a larger monthly amount from his employer's plan and a correspondingly smaller amount from GIS and GAINS." (Brief 154, p. 13)

The Council believes that the existence of the "tax-back" provision in the GIS and GAINS programs discourages the employer from making inflation adjustments. However, income-tested programs necessarily involve some degree of offset for money received from other sources. The combined GIS-GAINS mechanism, described in detail in Chapter 5, involves a "tax-back" or reduction in benefit of less than the full amount for increases in outside income except within a fairly narrow

corridor of supplements. When it is considered that the income guarantees are escalated at quarterly intervals between the dates at which the annual determination of eligibility and supplement amounts is made, it will be seen that these programs offer little or no problem to the employer who wishes to adjust pensions in payment.

For those eligible for supplements, tax-back arrangements might be adjusted in a variety of ways to allow a faster or slower rate of reduction; but at some point the operation of an income guarantee will reduce benefits for some and deny benefits to others. The Commission does not recommend any change in the tax-back for GAINS.

A second disincentive related to post-retirement adjustments is found in the general absence of pensioners from the collective bargaining table; or, as some have expressed it, the freedom of employers and unions to disregard the needs of retired employees. From this observation, if unqualified, it might follow that we should not look to the bargaining process for answers to the problem of inflation protection for pensioners. It might even be argued that unions, if given a voice in this area, would face a conflict of interest to the extent that they were called upon to determine how the negotiated wage and benefit "package" should be shared with persons no longer in the bargaining unit or, usually, in the union. Certain facts are clear, as pointed out by several groups during the hearings: retired workers neither have the necessary economic strength to bargain directly with employers, nor are they in a position to ensure that a recognized bargaining agent will act on their behalf. The Labour Relations Act, while it does not expressly prohibit a union from attempting to represent retired workers, does not oblige any union to do so nor does it require the employer to respond.

In practice, the lack of legal authority does not appear to have prevented many unions from bringing pensioner matters to the bargaining table. Some do so as a regular practice and with little obvious objection in principle from the employers. It would seem, although the statistics in this connection are sketchy at best, that the question of a union's legal right to represent the retired group is of considerably less importance than the willingness of both parties, employer and union, to demonstrate their responsibility to the community by considering the needs of people outside the formal bargaining unit. Where the law is most likely to act as an absolute bar to negotiations for current pensioners is in certain highly structured bargaining situations, as in some parts of the public service, whose scope is limited by specific legislation.

Whether or not steps should be taken to bring the pensioner to the bargaining table - either directly or through established unions - involves the consideration of many issues not related to pensions. As things now stand retired workers cannot rely on the collective bargaining process to obtain any reliable protection of purchasing power.



## CONCLUSIONS

Having reviewed the indexing question in depth the Commission reached some unanimous conclusions:

- Government programs - the OAS, GIS, and CPP - should continue to be fully indexed to the Consumer Price Index to provide a floor of protection against loss from inflation.
- The employer has no legal or moral obligation flowing from the nature of a pension to ensure that pensions are protected from inflation either before or after retirement.
- Government should not, through legislation, oblige employers who have pension plans to provide any type of inflation protection, with the exception of the participating annuity option discussed above. The latter, however, constitutes nothing more than a balancing of the use of capital accrued by the employer on the employee's behalf, and in contributory plans the capital accrued from employees' contributions.
- The collective bargaining procedure should be allowed to operate so that with adequate information about cost, employers and employees can determine what measure of inflation protection, if any, should be provided and by what means.
- The funding of all types of inflation protection should be regulated by the Pension Commission of Ontario for both private sector and public sector employment plans in such a way that basic pension benefits are in no way undermined. Serious consideration should be given to protecting contributors to pay-as-you-go adjustment "funds" from misunderstandings and misconceptions, and to discontinuing the use of this method.

The Commission also recognizes that many now receive pensions that are clearly inadequate for living with today's prices. No amount of indexing will cure their problem. They must instead turn to the government support programs already in place and fully indexed.

Current concern with inflation protection should not be allowed to obscure the more fundamental problem of providing a sufficient amount of retirement income to begin with. Up to the time of retirement the goal is, or should be, to earn (or vest, or otherwise secure) a pension that bears a reasonable relationship to one's earnings. If that objective is achieved, the inflation problem is largely reduced to one of preserving the purchasing power of the pension after it has commenced. Put simply: the more adequate the pension at retirement, the longer the period before inflation will begin to hurt. Obviously, many thousands of pensioners today are suffering because their pensions on retirement were



deficient at the outset; inflation protection alone could serve at best only to stabilize an already unsatisfactory level of real income.

It is clear that cost is a very real limiting factor for indexing and that the most generous inflation protection has come in the public sector where cost considerations are less visible and hence less pressing. However, we must not forget that compensation in both public and private sectors is subject to collective bargaining and this factor makes it unlikely that any existing differentials will remain unchanged.

### Timing and Cost

The issue of the cost of indexing has brought forward proposals on the suitable time for indexing to take effect. Some argue that any retiree could bear a loss of purchasing power for three years, so that no indexing should start until three years into retirement. A less arbitrary approach along the same line is to say there should be no indexing until cumulative loss of purchasing power based on the CPI reaches, say, 20 or 25 per cent. This might occur only in the later years of retirement if inflation were at traditional levels. With double-digit inflation, however, the critical point could appear in two years. A further argument holds that the normal retirement age of 65 is the time from which indexing should start on the ground that earlier retirement is a matter of individual choice and should not bring with it inflation protection the person could have obtained through continued employment. Where indexing has been adopted by employers, most have preferred to limit their liability in a more explicit manner - by the use of annual "caps" for example, or by adjusting pensions only for CPI increases above a certain annual percentage. Evidently the timing techniques either do not promise a significant cost reduction (if early retirements were excluded, for instance) or the prospect of an indefinable future liability is considered to be of much greater importance.

### Individual Initiative

We have noted throughout our discussion of indexing that the debate has focused on defined benefit pension plans. There has been little or no concern for money-purchase plans, flat dollar plans, deferred profit sharing plans, RRSPs, or investments made with tax-paid dollars. Those with such arrangements are also faced with the same loss of purchasing power in rising inflation. Therefore, if any steps are to be taken to provide inflation protection through legislative action, the Commission recommends that it be done on a universal basis. The Commission recognizes that universality can be virtually assured by expanding government programs as such, but we prefer to encourage individual initiative in line with our overall view that provision of retirement income is still an individual responsibility. Therefore, rather than increase the basic floor for government old-age assistance programs the Commission proposes

to extend a measure of inflation protection, through the income tax system, to the retirement income people receive from various sources.

#### INFLATION TAX CREDIT

The Commission proposes the introduction of a refundable tax credit to offset the loss of purchasing power of retirement income through inflation, up to a maximum level of income. This approach offers several advantages:

1. The protection is available to all persons in retirement and not only to those with selected types or sources of income.
2. The protection can be geared to protect income beyond the floor level provided by existing government programs, so that the individual who has saved to set aside assets to provide income in retirement can have assurance that at least part of these can be preserved, and therefore that saving is worthwhile.
3. The protection is flexible so that it can easily reflect changes in the inflation rate. It is flexible for:
  - (i) amount of protection for each dollar of income,
  - (ii) level of protection for total amounts of income,
  - (iii) timing of protection so that protection can be given when it is actually needed.
4. The protection is easy to administer because it is part of a tax system already in place and familiar to Canadians.

This is not a unanimous recommendation of the Commission. One Commissioner does not agree that any action beyond indexing as it presently exists in government programs should be legislated directly, or encouraged indirectly through legislation. The Commissioner is of the opinion that: "the combination of full indexing of government programs and extra tax deductions for pensioners is already providing a reasonable degree of protection. The more automatic protection there is, the fewer choices individuals have to make where values and prices can be influenced and the more inflation is built into essential commodities and services; the overall cost of the proposal will prove to be unaffordable or unreasonable in terms of the burden on the economy as a whole and the commitment we will be asking the younger work-force to make good on."

Refundable tax credits are not new. Ontario has successfully operated for some years a system of refundable tax credits for property taxes and sales taxes and pensioners, known collectively as the Ontario Tax Credits. Manitoba has similar credits including a cost-of-living

credit. Recently, the federal government introduced a Child Tax Credit in lieu of increased Family Allowances.

The Manitoba credit applies to nearly all persons over age 16, whether or not they pay income tax. It is a credit of 3 per cent of the total of personal exemptions, blind or bedridden deductions and education deduction, less 1 per cent of taxable income. This is a very modest protection and is only indirectly geared to loss of purchasing power. The Commission's approach tries to deal more directly with the problem. The Manitoba cost-of-living credit confirms that the approach is open to Ontario and any other province which might wish to adopt it.

The Commission has not attempted to draft a detailed proposal for the inflation tax credit, but the principle and operative features may be described as follows:(35)

#### Purpose

To protect from inflation that part of eligible retirement income above the amount already fully indexed through QAS, GIS, and CPP, up to a maximum amount of such income determined by an assessment of social objectives.

#### Income Eligible for Protection

Income from sources traditionally considered to be retirement income including pensions, annuities, RRIFs, DPSPs, periodic payments such as disability pensions and Workmen's Compensation, but not earnings from employment.

#### Personal Eligibility

A person should be aged 68 or over, resident in Canada at least six months of the year in which the credit is claimed and not earning from self or other employment in the year in which the credit is claimed an amount greater than the basic personal exemption for the year (\$2,430 in 1978, the year taken for our examples).

In our opinion, there is no reason for providing inflation protection in the first year of retirement before any appreciable loss from inflation is suffered. Therefore we would postpone eligibility until the calendar year in which the person applying reaches age 68 and has retired, since while employed the person may be expected to offset the effects of inflation through earnings. We have utilized the age 65 concept in this approach since that age for retirement is widely accepted and is the eligibility age for government benefits. Those who retire early for disability will have some measure of protection prior to 65 through other programs. For the person who chooses to continue working after 65 we would not delay the inflation protection for three years from actual retirement; postponed retirement may actually save the



taxpayer money. Mortality factors at age 68 control the expense of the tax credit and at age 68 are significant. They work to underscore the purpose of inflation protection, i.e., to provide an answer to the fear of living so long that retirement income will not meet current living requirements related to an individual's former standard of living.

#### Maximum Amount Eligible for Credit

Government programs like OAS, GIS and the CPP are already fully indexed. Our proposed tax credit attempts to protect income above the levels of the government programs to encourage individual efforts to provide retirement income. However, the resources through the tax system are limited and the Commission has considered very carefully what level should be protected. We recognize that with rising inflation the government programs will continually increase the floor protection and that to choose a fixed maximum for the tax credit would eventually result in the government income guarantee overtaking the maximum protected by the tax credit. Therefore we require a maximum which will rise with the government program floor. We rejected the Average Industrial Wage because it affords protection at too high a level at present in relation to our tax resources. Over time the AIW is likely to rise more rapidly than the Consumer Price Index to which government programs are tied. We rejected the YMPE of the CPP on the same grounds. We have therefore selected a maximum based on twice the total of the OAS and maximum CPP for the year in which the tax credit is claimed. (All figures are rounded.)

#### Calculation of the Maximum Protected Level 1978

OAS	\$1,903
CPP	2,333
	<u>\$4,236</u> x 2 = \$8,472

The Inflation Tax Credit would then be calculated as follows:

#### Single Person Age 68 in 1978

Total income:		
OAS	\$1,903	
CPP	2,333	
Employment pension	6,000	
RRSP annuity	<u>4,000</u>	\$14,236
Eligible Income		
Employment pension	6,000	
RRSP annuity	<u>4,000</u>	A. 10,000
Maximum Eligible for ITC		
Lesser of A and \$8,472 less Federal and Ontario	8,472	
income tax on \$8,472 at the taxpayer's		
marginal rate, say, 31.25 per cent.	<u>2,650</u>	
	\$5,822	
(Tax is deducted since it is the purchasing power		
of net disposable income which is to be protected.)		
Amount Eligible for Inflation Tax Credit	\$5,822	
<u>times inflation rate for 1978, say</u>	<u>.09</u>	
Inflation Tax Credit to be applied as a credit		
against any income tax payable with any credit		
balance to be refunded as an income tax refund	\$	524



The effect of the credit is to put \$524 back into the taxpayer's pocket, thus maintaining the purchasing power together with the fully indexed government plans of \$8,472 of income less any income tax payable in the ordinary course. The Inflation Tax Credit would be cumulative from age 68. For example, in 1979 the ITC would be calculated as follows:

Single Person Age 69 in 1979

Maximum Protected Level

OAS	\$2,006	
CPP	<u>2,616</u>	
	\$4,622 x 2 =	\$9,244

Total Income

OAS	2,006	
CPP	2,542	
Employment pension	6,000	
RRSP annuity	4,000	
1978 ITC	<u>524</u>	\$15,072

1978 ITC is added to be eligible for credit and subject to income tax as would increased payments from any indexed pension.

Eligible Income

Employment pension	\$6,000	
RRSP annuity	4,000	
ITC 1978	<u>524</u>	A. \$10,524

Maximum Eligible for ITC

Lesser of A and \$9,244	9,244
Less income tax on \$9,244, say	<u>2,725</u>

Amount Eligible for ITC

x cumulative inflation rate	6,519
.09 for 1978 + .09 for 1978 = 18 per cent	<u>.18</u>
<u>Inflation Tax Credit</u>	\$ 1,173

The same calculation with a changing maximum level eligible for protection and changes in actual inflation rates would continue until the death of the taxpayer. If at death there were a derivative survivor pension or annuity, the amount of the survivor benefit would be eligible for the ITC regardless of the age of the survivor.

In the examples we have shown how the credit might work to provide a measure of inflation protection above what is already fully indexed by the government and below a level of income where a person may reasonably be expected to bear the full burden of inflation. This would provide some incentive to the individual to provide some additional retirement income beyond what is offered through government programs with the assurance that it would retain some measure of its original purchasing power.

## Some Areas of Criticism

### 1. The Inflation Tax Credit and the Married Person

We propose that there be no difference in the maximum level to be protected as between single and married people. We are looking at preservation of assets and income streams saved during the working life of an individual regardless of marital status. GIS and GAINS reflect marital status because they are geared to subsistence needs where the support of two persons on one income will not achieve the social goal. The Inflation Tax Credit has a different goal, the encouragement of individual incentive to save. If both husband and wife have eligible income to which the ITC could apply, they should both be entitled to claim the credit. There may be a slight increase in the credit for the married person whose spouse has no income above that for a single person because the deduction for income tax to determine the eligible income for the married person will be less.

### 2. Limits on Those Entitled to Protection

As the examples are constructed the retirement income of even those at very high levels of retirement income would be protected, although the deduction of the taxable portion of eligible income at marginal rates provides some reduction. It would be reasonable, however, to make those above a certain level determined by a multiple of the protected level, for example, say 2 or 3 times the total income, ineligible for any part of the Inflation Tax Credit.

### 3. Interest and Dividends Not Protected

In the example, income from interest and dividends is not eligible for the credit. It may be argued that if a person has purchased a house to provide income in retirement, has sold the house and now receives mortgage interest from it or has invested the capital in stocks and bonds that this income also has the character of retirement income and should be protected. Such income up to \$1,000 is currently tax-exempt at any age. Perhaps this deduction should be indexed to inflation for those 68 and over. The deduction should probably be waived as a condition for eligibility to claim the ITC on such income.

### 4. Time for Eligibility

We have adopted age 68 as the commencement point for the Inflation Tax Credit. Eligibility should not start before retirement; hence, earned income in the year for which the credit is claimed should not exceed the basic personal income tax exemption. It should not start before age 65, since otherwise it might provide an undesirable incentive for early retirement.

## 5. Time of Payment

Refundable tax credits, designed to assist those at lower income levels, are often criticized if payments are made after the year in which they are earned; e.g., Ontario Tax Credits are paid through a tax return filed after the calendar year end. This is not a problem in the same degree for Inflation Tax Credit since the protection is being given to those above the levels where payments on a current basis might be considered indispensable.

## 6. Double Indexing

Should an employer pension already indexed be eligible for the ITC? In view of the limited band of income we propose should be protected, we cannot recommend the abolition of all indexing or adjustments in order to avoid the double indexing problem.

### Summary

If basic needs are protected through the government programs by full indexing to the Consumer Price Index (OAS, GIS and CPP) and if individual saving for retirement is encouraged through the protection of income above the government benefit levels to a suitable degree, through an Inflation Tax Credit or some other means of universal application, we believe that the problem of inflation is sufficiently answered. The fully indexed pensions of government employees are certainly maintaining pension purchasing power, but the need for such maintenance is questionable and in terms of cost to the taxpayer and the benefit to only one group is not justifiable. We believe that pressure will and should be brought to bear to equalize the position of government and private sector employees. If the issue of inflation is dealt with in a reasonable way to afford some protection, employers, government and private alike, would then be free to attack the much more important question of adequate pensions at retirement through improvements in basic pensions.

Throughout this chapter we have emphasized the narrow scope of the indexing debate, and it is on this ground that the Commission has rejected any proposal to legislate inflation protection for pension plans. The tax system, which is eminently designed to deal with income-related matters, is the logical place to turn for an equitable answer to a problem which affects all segments of society.

## NOTES

- (1) Consumer Survey (Volume VIII), questions 19a, e. The report notes that there may have been an "asked first" bias in the response that indexing should be paid from general taxes for government programs.
- (2) Arthur Donner and Fred Lazar, "Private Pensions and Indexing," in Volume IX of the Commission's Report.
- (3) Ibid.
- (4) Ibid.
- (5) Ibid.
- (6) Ibid.
- (7) Brief 175. Note that Revenue Canada rules prevent averaging on less than three years.
- (8) Statistics Canada, Vital Statistics, Vol. III, Deaths 1975, Cat. 84-006, Table 2, p. 2. Average life expectancy at 65 for men is 13.72 years and for women, 17.47 years.
- (9) See e.g., Geoffrey N. Calvert, Pensions and Survival, pp. 68-72.
- (10) Consumer Survey Report, Question 8c.
- (11) For a discussion of whether or not indexing is inflationary see Donner and Lazar, "Private Pensions and Indexing," in Volume IX.
- (12) Canada Pension Plan Statutory Actuarial Report No. 6 as at December 31, 1977, pp. 36, 37.
- (13) James E. Pesando, "The Indexing of Private Pensions: An Economist's Perspective on the Current Debate." Toronto, 1978, p. 2.
- (14) With the changes in the 1974 Urban Family Expenditure Survey this criticism has been largely met.
- (15) Extract from a letter to the Royal Commission dated June 13, 1978 from the Department of Employment, Parliamentary Under Secretary of State, U.K.
- (16) FEI Report on Survey of Pension Plans in Canada, Toronto, 1978, p. 3. See also Charles A. Kench and Associates Ltd., The Employee Benefits Survey 1978.
- (17) Keith Cooper and Colin Mills, Canada at the Pension Crossroads, New York: Financial Executives Research Foundation, 1978, Appendix F.
- (18) Statistics Canada, Pension Plans in Canada, 1978, Cat. 74-401.
- (19) The CPP retirement benefit is based on the YMPE which currently increases at 12 1/2 per cent annually until it equals the Average Industrial Wage.
- (20) YMCA Toronto, Brief 150.



- (21) James Pesando, The Indexing of Private Pensions: Separating Fact from Fancy in the Current Debate, (monograph) p. 12 and following.
- (22) For a full critique of the indexed bond proposal see Donner and Lazar, "Private Pensions and Indexing," in Volume IX.
- (23) Pesando, Indexing, pp. 13 and 14.
- (24) Ibid., p. 15.
- (25) Donner and Lazar, "Private Pensions and Indexing," in Volume IX.
- (26) Pension Policy Statement, 1978, attached to Brief 304, Canadian Labour Congress. See also Brief 239, United Steelworkers of America and Brief 221, Ontario Federation of Labour.
- (27) Unofficial translation by the Pension Commission of Ontario.
- (28) Report of The Industrial Inquiry Commission into Canadian Railway Pension Plans, September 1976, Dr. Noel A. Hall, p. 121.
- (29) It has been suggested that the rate of interest for valuation of annuities be set by the Pension Commission of Ontario at, say, 4-1/2 per cent. See also: Brief #213, Johnson & Higgins Willis Faber Ltd.; and Cofirentes report.
- (30) See James E. Pesando, Private Pensions in an Inflationary Climate: Limitations and Policy Alternatives, Ottawa: Economic Council of Canada, 1979.
- (31) Ibid., p. 71.
- (32) For a discussion of "negative excess interest" and a critique of real rate of return funding see Donner and Lazar, "Private Pensions and Indexing," in Volume IX.
- (33) Pesando, Private Pensions in an Inflationary Climate, p. 68.
- (34) The Superannuation Adjustment Benefits Act, 1975, (S.O. 1975, c. 82), section 13(2).
- (35) For a general discussion of negative income tax see Chapter 14 (Government Regulation - Taxation); also Canada Department of Finance, Integration of Social Program Payments into the Income Tax System (monograph), November, 1978. Income tax jurisdiction is both federal and provincial; it is suggested here that Ontario seek the necessary changes in tax agreements to provide for an inflation tax credit.

## LIST OF TABLES

Table 1 - Respondents' Attitudes towards Total and Partial Indexing of Specific Types of Pensions	212
Table 2 - Projections of Probable Rates of Inflation, Three Scenarios, 1978-1990	217
Table 3 - Comparison of 1967 and 1974 Expenditure Weights Used in the Consumer Price Index, by Major Component	218
Table 4 - Automatic Escalation of Benefits, by Sector, Ontario, 1978	223

## Chapter 11

# Additional Limitations of Pension Plan Design

### INTRODUCTION

In the preceding chapters we have discussed some of the broad problems related to employment pensions: lack of universal coverage, loss of entitlement, defects in the structure for assuring payment of the pension, and the effects of inflation. This chapter deals with important problems which arise from the basic design of many pension plans. Each of these problems - defined benefit design, form of benefit, survivor benefits, and integration with government programs - involves a feature developed for a specific purpose. In achieving that purpose, however, the technique or method creates certain inequities which, if possible, should be remedied. In this phase of its work the Commission has encountered some particularly difficult questions involving social purpose, individual claims, and how these may be reconciled.

### THE DEFINED BENEFIT PLAN

Defined benefit plans in various forms cover 92.3 per cent of members of employment pension plans in Ontario.<sup>(1)</sup> Most of the large plans are of this type. The benefit formula, as described in Chapter 7, may be a flat benefit per year of service or one based on average earnings - career earnings, or earnings in the final years of participation.

Throughout the briefs submitted to the Commission and in public hearings, criticism of existing pension arrangements has been focused on problems inherent in the defined benefit design. While it may be that a pension of 2 per cent of final earnings per year of service is adequate for the employee who stays with the same employer for thirty-five

years, it appears that the design of such plans is not responsive to the everyday situations of most Ontario workers.

### Mobility of Labour

Given the reality of a mobile labour force, the lack of immediate vesting is a serious and obvious defect in all pension plans. Even with vesting, however, a loss of potential pension occurs each time a person changes employers. The amount vested, regardless of the plan type, is determined by conditions at the time of termination; it will not be increased by virtue of subsequent salary increases or plan improvements. Interest continues to operate, whether to provide a specific benefit amount (as in a defined benefit plan) or to add to the individual account that will buy an annuity at retirement (the money-purchase method). In either case, however, inflation will reduce the purchasing power of the eventual pension - most obviously in the case of a defined benefit but still seriously in a money-purchase plan unless its investment experience is unusually favourable. Defined benefits are visibly outdated by inflation: for example, a deferred pension of \$50 a month established in 1971 would have a "real" value of only \$25 by the end of 1979.

Let us look at what happens in a contributory defined benefit plan with a final average benefit formula:

Worker A, age 30, joins employer X's contributory defined benefit plan. The worker contributes 5 per cent of earnings towards a pension promised at age 65 equal to 2 per cent of salary for the best five years of service times years of service. Thirty-five years later, the worker retires from the employment of employer X with integrated government and employer pensions equal to 70 per cent of pre-retirement earnings (although less than 70 per cent of the last year's earnings).

Worker B, age 30, joins employer X's plan with the same pension expectation as Worker A. At age 35, B's job becomes redundant. Employer X refunds B's five years of contributions plus interest at 4 per cent per annum. B goes to work for employer Y whose pension plan has the same benefit formula as employer X's. B stays with employer Y for 9 years. When employer Y wants to move B's job location, B's spouse objects and B, now 44, looks for other employment. Employer Y refunds B's 9 years of contributions with no interest (as none is required to be paid under the plan). B joins employer Z and finds a defined benefit plan with the same benefit formula as that of the first two employers. This time B remains until reaching 65, retiring with a pension calculated as 2 per cent of the best five years of service with employer Z times 20 years. When integrated with government pensions, B's income may be about 50 per cent of pre-retirement earnings.

Worker A and Worker B have both been diligent workers over a 35 year span. Under the same system A receives a "70 per cent" pension. B



receives a "50 per cent" pension plus whatever the returned contributions invested at current rates over the period might buy in the form of an annuity at age 65. Time alone, however, prevents compounded interest from increasing B's total monthly income to that provided A by his pension. Who has failed, Worker B or the "system?"

The difference in results for Workers A and B arises in three ways:

1. The present vesting rule of 45 and 10 did not protect B so that his contributions could remain in the pension plans of Employer X and Employer Y and provide him with a pension at age 65; but even if it had, B would have been entitled only to the amount of pension his own and the employer's contributions would have purchased at the time of his termination of employment. At the age he had attained on each termination it is highly unlikely the employer would have had to contribute much if anything toward the purchase of his accrued pension. In any case, the accrued pension would have been calculated on the best 5 years' salary for his periods of employment with employers X and Y, not on the higher salary base he could normally expect toward the end of his working career.
2. Each of employers X, Y, and Z has honoured the commitment under the terms of the pension plan. Even if B invested all of the returned contributions from Employer X and Y in conventional investments, the lack of any employer contributions and the time lost for compounding interest would prevent B from equaling A's position at retirement.
3. What happened to the interest Employer X and Employer Y earned on B's contributions? If Employer X earned 6 per cent a year on his fund but paid B interest at only 4 per cent, the difference remained in the pension fund and was used by Employer X to pay for the pensions of other employees. In the case of Employer Y, all interest earnings on B's contributions remained in the pension fund to reduce the overall cost to the employer.

One justification for these differences is that defined benefit plans were designed primarily to benefit the long-service employee, and this fact is known to the employee who accepts a job with an employer having such a plan. But can it realistically be said that the pension plan is subject to negotiation between the employer and the individual employee? In the labour market the job seeker must take the pension plan as he finds it even if he expects to remain only for a short time. If we accept the long-service rationale, then the employee is deemed to assume the risk of not remaining with the employer to retirement, and with it the principle of pooled funding whereby those who remain to retirement receive the benefits accruing to the fund from those employees who die or terminate employment before retirement or before their benefits are vested.

The job history review in the Consumer Survey discussed previously shows the reality of the job market for workers in Ontario. Table 7 of the Consumer Survey gives a breakdown for job mobility by age group which shows, for example, that even after three jobs only 25 per cent in the 35-54 age group did not change jobs again; and even after six jobs only 45 per cent did not move again. The average duration of jobs held for those now aged 55 and over was only 9.22 years. Even allowing for the large number of women who return late to the work-force and whose short periods of service would reduce the average duration for this group, it is clear that few could have conformed to the career pattern for which defined benefit plans are designed.

Labour mobility is a fact of life in Ontario and it is not confined to the young employees. While the restlessness of the early 1970s may have had a marked effect on job tenure, there appears to be a long-term departure from the once-prevailing pattern of a lifetime career with one employer.

Therefore it seems questionable to support through the tax system a plan design which benefits fully only long-service employees and which (by default) prevents short-service employees from receiving adequate pensions. Every short-service employee under these plans is a potential recipient of government assistance after retirement since, despite the care with which the person may plan for future retirement, there is little hope of achieving a work pattern that will yield the optimum pension under a defined benefit plan. Women especially are at a disadvantage. Their careers usually are broken either for raising children or for the care of the household, including aged relatives. The break in employment most often occurs around age 25 - before she has accrued any vested pension credits, except CPP - and ends in the late thirties. Paid employment then continues to age 65 or until her husband retires. Meanwhile the wife's work pattern, if influenced by the husband's, is likely to be intermittent. And, where the husband's pension credits may continue if his employer moves him to another city, his wife loses the benefit of unbroken service in any plan to which she belongs. With almost 50 per cent of the work-force in Ontario now made up of women, the inequitable aspects of vesting in defined benefit plans are more visible than before; although the rules of the game obviously make for very few "winners" - male or female.

It should be pointed out that discontinuity of pensionable service is not always simply a matter of moving from plan to plan. Our illustrations assumed that on each change of employment Worker B was able to enter a plan with the same benefit formula. But if the next employer had no pension plan, B would have no opportunity to accrue credits during several years of work-life, and no opportunity to make up for that loss in a later period. Thus, the ability of B to acquire a 50 per cent level of retirement income - as unsatisfactory as that may be - depends on an almost ideal assumption.

We have seen in a previous chapter how the problems arising from breaks in pensionable service by change of employers cannot be cured even by immediate vesting or reciprocal transfer arrangements. Any attempt to solve the service problem by these means requires elaborate mechanisms which in turn must be regulated by government. We have also seen how, even with immediate vesting, the mobile younger worker in a career average plan can expect the vesting rule to secure only his own contributions. Only in a universal plan with immediate vesting can continuity of pensionable service be assured.

### Subsidies Among Plan Members

We have also seen how broken service creates age and service inequities, with younger and short-service employees subsidizing the cost of the plan to the benefit of the older and longer service employees through reduction in employer costs. Where a plan pays no interest or only minimal interest on refund of an employee's own contributions, it is clear to employees that a subsidy is involved and that they are paying for it.

A more fundamental problem is the relationship of employee and employer contributions. In group funding, benefits are paid from a pool created by employer contributions and, in contributory plans, employee contributions. Only the rate of employee contributions is known to the members in a typical plan; the employer's share fluctuates with changing total costs and is seldom if ever communicated to the employees. Hence the popular belief in contributory plans that the employer puts in contributions which match those of the employee. In a defined benefit plan this is not true for each individual or for the group. In some circumstances the employer will pay in much more than half the cost of pension for an individual employee. But the very nature of group funding makes it impossible for the individual to know what part of the cost is being paid for by him or her. This means that the employee does not know either the extent of the subsidies nor the true cost of his or her benefit.

Costs in a defined benefit plan are primarily those associated with immediate pensions rather than deferred (vested) pensions. As a result, the total cost and its distribution among employees in the group will be affected in a significant way by a change in the rules and practice relating to retirement age. An increasing emphasis on early retirement without actuarial reduction of accrued benefits leads to a shift in cost from the younger to the older employees. The extent and rate of this shift depend on whether such "early" retirement is entirely voluntary and whether the older employee's pension prospects (including the presence or absence of supplementation in the form of indexing or bridging benefits before age 65) are sufficiently attractive. Nevertheless, a policy of encouraging early retirement is certain to change the pattern of internal subsidization to the disadvantage of all short-service workers. Those now in the younger group who remain until retirement may



expect to benefit similarly from the subsidy process. Unfortunately, the younger employee has no assurance, even with a long-term commitment to the same job, that the employer and the pension plan will remain in business long enough to provide the promised benefits. If the plan is wound up, active employees will lose all rights they might have had to early retirement. More serious, however, is the reduction or elimination of individual entitlement that will be necessary if the plan is less than fully funded. Where early retirement has been utilized extensively, the share of assets available to cover benefits for non-vested members (and in some cases others) may be virtually non-existent when the plan is terminated. In that event many employees will find there is nothing left of their "deferred wages" which in effect have been used to subsidize pension benefits for the older and longer-service group.

However acceptable the objectives and techniques involved in any particular defined benefit plan - and the Commission recognizes that many such plans are a product of mutual agreement through collective bargaining - it is clear that the cross-subsidies inherent in the design are not easy to reconcile with the theory that pensions are deferred wages. Certainly the notion of individual equity implicit in most briefs received by the Commission (in effect, "this is my money") is incompatible with the way "my money" is allocated in a defined benefit plan.

### Funding

Perhaps the greatest concern engendered by the defined benefit design, and magnified because of its cumulative aspect, is that of funding the pension promise.

From the detailed discussion in Chapter 9 we note that funding involves:

1. An elaborate actuarial exercise, starting with an estimate of the amount of money required to buy the promised benefit at the time it becomes payable, and converting that figure to present cost; forecasts must be made for interest rates, rates of inflation, mortality, employee terminations, salary increases, economic conditions, probable retirement ages, and any other development affecting cost.
2. A regulatory framework to assess the adequacy of the payments made under the funding method selected and to ensure that adjustments are made according to experience. Supervisory issues include the proper valuation of the assets in the fund, and the suitability of actuarial assumptions.



3. Regulations to protect employees who terminate membership in the plan so that their benefits are ensured without impairing the rights of the remaining members.
4. Additional calculation of the funding necessary to provide credits for past service with the employer before the advent of the pension plan.
5. New projections and changes in the funding schedule to accommodate benefit improvements.
6. A sophisticated plan of financing, susceptible to alterations which may reflect short-run concerns of the employer rather than long-term protection for the employee, and which may be incomprehensible to the members even if disclosed to them.

With all the expertise committed to its operation, the funding apparatus seems incapable of delivering results that satisfy any reasonable criteria of reliability and public acceptability. It is not only the layman who is sceptical about the ways in which the pension promise is secured. The financial community frequently warns that inflation and poor investment performance will send pension costs soaring and so threaten the viability of many business concerns. Employers may seek cost remedies through the use of less cautious assumptions and methods in setting the amount of their pension contributions. And employees caught in plant closings demand government intervention when they learn, as sometimes happens, that the pension fund is unable to provide for all the benefits its members have been promised.

All of these aspects of funding taken together create a complex and sometimes incomprehensible situation which seems capable of resolution only through more regulation by government and more complexity. The Commission was surprised and impressed by the confusion apparent in the minds of many individuals who spoke at the public hearings, and by the diversity of opinion expressed by those with expertise in the pension field. It is doubtful that any degree of disclosure alone will succeed in quelling the fears of those to whom the pension benefits are promised.

#### Time for Change

Shortcomings of the defined benefit plan raise an overriding ethical question which the Commission believes must be considered: Should the government, which is committed to providing a climate within which individuals can save for retirement permit, by income tax incentives and through a regulatory structure, the continuance of a pension plan design that is not suited to the circumstances or needs of most of the working population?

If the average worker in Ontario can be expected to have at least three jobs during his or her working career, there can be no justification for allowing or forcing that worker to enter a pension plan whose formula cannot possibly operate to provide him or her with the "ideal" pension which it purports to deliver. On entering a plan the worker, as we have seen, faces all the consequences of its implicit subsidies - including the very real possibility of never earning any pension rights at all. Further, by entering into such a plan the worker is precluded from choosing any alternative arrangement which might be better suited to his or her circumstances.

When designing the Canada Pension Plan, the federal government chose a defined benefit structure for reasons that might apply equally to plans in the private sector - primarily the ability of this type of plan to provide, almost immediately, the desired level of pension. As a direct result of that decision the CPP, like its private prototype, is susceptible to the criticism that is not properly or adequately funded; and that it involves similar internal subsidies among groups and between generations of members. Unlike its cousins, however, the Canada Pension Plan is a government program and, as such, will be solvent as long as there is a government with taxing authority to raise the necessary revenue. Its benefits are virtually universal and completely portable, so that a participant's eventual pension is assured regardless of how many job changes occur during the person's career. For these reasons the CPP escapes some but not all of the criticisms made here concerning defined benefit plans in general.

The example of the CPP illustrates a very real advantage of the defined benefit design. Through various subsidies it has allowed government and private employers to create advantageous levels of pensions in reasonably short time periods. The Canada Pension Plan with its commencement of full payments after 10 years is providing, with Old Age Security, a firm base upon which individuals can make their own retirement provision. Employment plans, especially those with final average formulas, have, by applying the group principle, provided better pensions for some employees, particularly in a climate of high inflation.

Today, however, questions are being raised about the subsidies which operate within employment pension plans, as between individuals and groups. Apart from the funding problems already discussed, subsidies may be seen as equitable or inequitable according to one's perception of the purpose of a pension plan - as insurance or savings - and depending in part on whether direct employee contributions are required.

If a pension plan is regarded as insurance, it follows that contributions are in effect premiums paid for protection against the risk of income loss due to retirement. The payout will occur if the person lives to retirement age, and its overall amount will depend on the

extent of loss: the specified monthly amount multiplied by the number of months the pension is collected. As with any insurance, the cost is greatly reduced compared with that of a plan in which everyone receives a benefit. In a "pure" pension plan (without death or other ancillary benefits) those who die before retirement receive nothing; for them the risk simply does not materialize. Similarly, the retiree who dies a few months after the pension has commenced incurs a much smaller loss of income than one who lives to age 85, and the overall insurance payout is correspondingly smaller. Subsidies are inherent in the plan design, in the sense that money flows from those who suffer little or no income loss to those who incur some loss - that is, those who live to retirement age and beyond.

Since the pooling of risk is widely accepted for other types of protection (life, fire, sickness, etc.) one might expect it to be applicable to any risk whose probability and therefore cost can be estimated within reasonable limits. In essence, any defined benefit pension plan is a form of insurance. That is no less true of plans which include such non-pension features as death benefits and contribution refunds; such benefits constitute insurance against certain non-pension risks, and their cost is taken into account when contributions are determined. The Canada Pension Plan offers perhaps the most clear-cut example of pension "insurance," and one in which coverage is continuous.

In employment pension plans on the other hand, the insurance principle is considerably obscured by interruptions in coverage, termination of employment, and refunds of premiums. Where vesting rules apply, premiums are held in the pool to support coverage; but the value as we have seen is not always apparent to the person whose contributions are locked in. When real inequities are added to the understandable reluctance of younger employees to give up present income for an uncertain and distant retirement, it is hardly surprising that pension contributions are often regarded as personal savings rather than insurance premiums. Consequently, the individual member is not willing to accept the corollary of any insurance scheme: that there must be some restriction on the individual's entitlement to "his own money" so that benefits can be paid to those for whom the risk has in fact materialized. Even when a plan guarantees a full return of personal contributions with interest, employees are likely to look for a similar equity arrangement for the employer's contributions on the ground that they are deferred wages. In short, there is a tendency to reject the notion of subsidies within the group - and that means a rejection of the insurance principle in its entirety.

#### The Defined Contribution Alternative

While the defined benefit plan is based on the insurance principle, the defined contribution or money-purchase plan is essentially a savings program for the purpose of providing income replacement on retirement. Instead of a specific amount or level of pension, the money-purchase



benefit is the amount of annuity which the accumulated assets will purchase when the individual retires. Only at that time does the insurance principle become applicable: the assets of the retiree are then pooled with those of other annuitants and paid out in the same way as any other pensions. Until then, group pooling in the insurance sense does not occur, except that the member has the advantage of shared administrative costs and often better investment returns than could be obtained independently. Subsidization occurs only to the extent that the non-vested portion of a terminating employee's account is returned to the employer, or (in some plans) allocated to the accounts of the remaining members. In the absence of any subsidy from other members of the group, the individual's own accumulation which includes the employer's contributions determines the eventual benefit. As a result, the benefit potential for a member is limited by the time available for interest to accrue, and by the level of interest rates from time to time during that period.

With no pooling of risk, the money-purchase approach clearly cannot produce a desired level of benefit quickly. In recommending adoption of a mandatory plan based on defined contributions (Chapter 12) the Commission explicitly recognizes that the plan will not provide significant amounts of retirement pension for many years. That single disadvantage is outweighed in the Commission's opinion by the avoidance of all the funding complexities inherent in the defined benefit approach, and above all by the way in which the mandatory plan promises to meet the evident public desire for a program based on the individual account.

#### Abolition of the Defined Benefit Plan

If the defined benefit plan design does not meet the needs of workers in Ontario then different designs should be sought and encouraged. If in addition the defined benefit design is so complex in its operation that even with full disclosure an employee cannot assess the advantages and disadvantages, should the design be completely discarded?

The whole approach of the individual account is responsive to much of the current social philosophy. Many of the briefs to the Commission advocated a switch to the money-purchase or individual account approach, while recognizing that for some the defined benefit plan would provide a better benefit. As noted, additional support can be found for the individual account in the concept of "deferred wages" which sees an entitlement accruing from day to day as wages are earned rather than springing up after a stipulated length of service has been completed. The increasing popularity of group RRSPs, which are in fact individual accounts under common administration, indicates a desire on the part of employers to know what costs will be.

On the other hand most union groups reject the individual account approach, particularly when pensions are provided on a non-contributory basis. Union policy favours non-contributory plans and the group



pooling principle. Other groups in favour of the defined benefit plan include those who advocate legislation to place all pension plans on a final earnings basis as a means of dealing with inflation and ensuring continuation of a pre-retirement standard of living into retirement.

In Brief 318 Mr. Donald Eastman makes a lively statement of his perceptions of the individual account approach. After indicating that he is in a profit sharing plan to which he and his employer make contributions, he outlines the benefits of the individual account as he sees them:

#### "Personal Benefits

"I know exactly where I stand on my retirement funding. I don't have to worry about whether there will be enough money to go around when it comes time for me to retire and there is no concern that I will be 'had' by overly conservative fund management.

"It reduces my life insurance requirements. In the event of my death, the money in my retirement account is available to my family.

"It provides financial flexibility at the time of retirement. I will have a choice of retirement vehicles available - such as a variety of annuity plans, or even the option of taking some in cash if, for instance, I wished to purchase a retirement home.

#### "General Benefits

"It makes the portability of retirement funds ridiculously simple compared to the complexities involved with the general fund approach.

"It effectively eliminates the problem of perceptual inequity. Comparisons are automatically based on account accumulations, not on something as deceptive as monthly payments.

"Discussions and bargaining on retirement benefits would be placed on a much sounder and equitable foundation with a much cleaner view on both sides of the costs and tradeoffs involved. It should eliminate the '30 and out' syndrome.

"It effectively sidesteps the jungle of cost of living increases. That becomes something for the retiree to determine in making his choice of financial vehicles for his retirement account when he reaches retirement age. I'll go into more detail on cost of living increases later, but for the moment, let me point out that given the opportunity our financial institutions are very capable at developing special instruments to meet specific needs.

"Given the funding, or lack thereof, of the Canada Pension Plan, I have some serious doubts as to its financial viability and level of payments when I reach nominal retirement age. Because of that, it is doubly important that any other retirement savings be fully secure.

"I am a sceptical person, and have limited faith in the ability of actuaries and pension fund administrators to accurately predict an unpredictable future. Frankly, I feel much safer with the retirement account approach than with general group retirement funding."

As well as individuals like Mr. Eastman, representative groups, such as the Ontario Advisory Council on Senior Citizens and the Canadian Pension Conference supported the individual account principle through a mandatory, contributory, money-purchase plan.

By eliminating defined benefit plans and switching to a money-purchase approach the following would be accomplished:

1. a better climate for earlier and immediate vesting;
2. for the employer, a certainty of cost;
3. for the employee, a certainty of monies credited to his or her account;
4. a visible amount growing with years to retirement;
5. a removal of unfunded actuarial liabilities together with the elaborate system built up to determine them, fund them and guarantee the solvency of the plan;
6. a reduction in the cost of administering plans.

Some new problem areas would also be created which require new thinking:

1. a plan design in which past service credits cannot be readily provided. However with the defined contribution design goes the same need for past service credits which can affect greatly the ultimate amount of the pension under the formula. Income tax rules could make provision for additional contributions to an individual account in recognition of working years before the account was established;
2. in a situation where the insurance companies will have more potential business in the sale of annuities, steps will be needed to encourage more attractive annuity options;

3. loss of ancillary benefits such as survivor pensions presently provided on a non-actuarial basis; but these might be provided through group life and disability insurance;
4. a question of proper employee representation in investment decisions;
5. a new method of investment in private capital markets;
6. a possible new role for the Pension Commission of Ontario oriented to the concerns of the individual employee.

### Conclusion

While the Commission sees good reasons for a change from the defined benefit design to the defined contribution design it does not recommend the abolition of defined benefit plans. It recommends the establishment of a mandatory plan on an individual account basis as a savings level of retirement income. Beyond this level the Commission sees the defined benefit plan operating to accommodate the needs specific to particular employers and employees, determined in the collective bargaining process.(2) However some of the existing inequities of the defined benefit design must be eliminated or reduced, whether or not the mandatory plan is established. Recommendations to this end are outlined in Chapters 8 and 12 as well as in the balance of this chapter.

### FORM OF RETIREMENT BENEFIT - THE LIFE ANNUITY

#### Employment Pension Plans

Under the Ontario Pension Benefits Act the benefits vested at termination of employment or at normal retirement age must be taken in the form of a life annuity. "Life annuity" is defined as one which: "continues for the duration of the life of the annuitant, whether or not it is thereafter continued to some other person." A "deferred life annuity" is a life annuity "that commences at retirement age under a pension plan, but in any event not later than age seventy years."(3)

The limitation of choice in the form of benefit reflects the concern of the legislature that pensions in fact should provide replacement income in retirement. Restrictions for Registered Retirement Savings Plans under the Income Tax Act are less stringent.

#### Registered Retirement Savings Plans

Writing to the Trust Companies Association of Canada in January 1976 in response to a submission for amended conditions for Registered

Retirement Savings Plans, Donald S. MacDonald, then Minister of Finance for Canada said:

"...the purpose of the RRSP is the same today as it was when the provisions dealing with these plans were placed in the Income Tax Act a number of years ago - that is to enable self-employed people and those with inadequate employee pension plans to build up tax- sheltered savings for their retirement years, putting them on the same footing as employees covered by pension plans."(4)

What was meant by the "same footing" early in 1976 is not clear because at that time RRSP benefit features already offered a cash-out provision prior to the seventy-first birthday. Such cash-outs were probably intended to be discouraged by treating them as ordinary income, subject to tax in the year of withdrawal; but the option was available.

Since that time the Consumers Association of Canada, led by Thomas Delaney, has attacked the rigidity of the RRSP benefit form at age 71, and the federal government has amended the Income Tax Act to allow investment in a Registered Retirement Income Fund and term certain annuities. Now Delaney is seeking further changes that would allow RRSP holders more control of their accumulated capital after age 71.

The Commission received a number of submissions supporting the need for more flexible choices for RRSP funds at maturity based on three main grounds:

1. the individual should have control over the disposition of his or her own funds;
2. the individual should be able to design retirement income according to his or her particular circumstances;
3. the individual should not be forced into a group risk pooling arrangement which involves subsidization for some and loss of capital for others.

#### Parallel Between RRSPs and Employment Pension Plans

In these arguments the RRSP is seen as a private savings vehicle. With the general acceptance of the deferred wage concept the same idea of individual savings is likely to prevail in employment pensions. The Canadian Life Insurance Association, while arguing against more flexibility for RRSPs, has pointed out dangers in the existing divergence created by locking-in of contributions to employment pensions.

"This difference in requirements has already caused some movement away from contributory pension plans towards a combination of a group RRSP and either a non-contributory plan with smaller pension benefits or a deferred profit sharing plan.



"If the pay-out at maturity requirements under RRSP legislation are significantly loosened, in comparison to pension legislation, the movement noted in the previous paragraph may accelerate. Alternatively, of course, there may be pressure to loosen pension requirements."(5)

Dominion Foundries and Steel Limited, long noted for its profit-sharing approach, advocates the right to lump-sum withdrawals from a pension plan at retirement:

"The availability of cash would allow many to invest in a small business, the income from which becomes, in effect, an indexed retirement income with the added benefit of preserving capital.

"Governments should reassess their attitudes which try to protect the individual, from a peril that is perhaps nonexistent, at the cost of limiting an individual's freedom to deal with his own assets in a manner that most suits his circumstance."(6)

It is interesting to note that Section 21(4) of the Pension Benefits Act does provide on termination of employment the option of a lump-sum payment of up to 25 per cent of the commuted value of the deferred life annuity, if the pension plan allows it. No similar option is available at normal retirement.

In the Commission's view it is only a matter of time before the arguments now being made for flexibility of benefits under the RRSP will be extended to employment pension plans. The combined effect of inflation on pension payouts and continuing high interest rates on personal savings will lead to more pressure to give the same flexibility to registered pension plans that RRSPs now enjoy.

In anticipating this argument the Commission notes first that there is a difference between RRSPs and employment pension plans, since in the RRSP all of the monies come from the owner's own contributions. (Exceptions are some group RRSPs to which the employer contributes indirectly by augmenting individual contributions at source.) In the employment pension plan a portion of the monies, often a large portion, comes from the employer, who therefore assumes a right to control the purpose for which the funds are used. It is on this point that the deferred wage concept will be brought to bear.

Second, the government uses a tax incentive, through the deductibility of contributions to RRSPs and employment pension plans, to encourage provision for retirement income. An unlimited freedom of individual choice in the disposition of funds so accumulated would destroy the purpose of the tax incentive.

The Commission therefore sees the answer to flexibility of benefits for both RRSPs and employment pension plans in a balancing of the need

for protection in retirement and the need for individual choice. If the Government of Ontario adopts the proposed mandatory pension plan, in which the form of benefit at retirement is a life annuity only, the way can be opened for employers to remove some of the rigidities in voluntary employment pension plans. If however the Government of Ontario is not prepared to adopt a mandatory scheme, the Commission would not favour the altering of the form of benefit now required for employment pension plans, except to include the recommended options.

### Inflation and the Form of Benefit

The life annuity in its basic form is not adaptable to the effects of inflation. The usual form of life annuity is a constant monthly payment from commencement to the death of the pensioner. As inflation reduces the purchasing power of the pension, which the employer is not required to adjust, the recipient can see that the rate of interest on the capital which purchased the annuity is rising in step with inflation; and the employer or insurance company is seen as making money at the expense of the pensioner.

Pesando proposes to remedy this situation by requiring that pension funds and annuities be funded on the basis of a "real" rate of interest, such as 3 per cent. The excess of nominal interest above the real rate would then be available first to increase the capital available out of which to purchase the annuity and second to allow the monthly annuity to increase with increased interest earnings on the capital sum, once the annuity had been purchased.(7)

For reasons given in Chapter 10 (Inflation) the Commission does not agree that pension plans should be funded on a real rate of return basis. However it does see the need for some adjustment to pensions in payment.

Some alternatives to the fixed annuity have been devised, although they may not be offered by all life insurance companies. Three types of fluctuating annuity may be described here in general terms:

#### Escalated Annuity

This type of annuity provides for an increase in the monthly payment at set intervals during the annuitant's lifetime. The increase may be a specific amount or percentage. For example, an annuity might pay \$100 a month in the first 5 years, \$125 a month in the next five years, and \$150 a month for the rest of the annuitant's life. The purchaser would recognize that the initial payments will be less than if a constant annuity were purchased; the particular schedule selected - according to the individual's anticipation of increasing needs - will reflect an actuarial calculation of equivalent values. It is not possible however to purchase an annuity which will change in tandem with the Consumer Price Index because of the impossibility of forecasting the

changes to allow the matching of investments required by the Department of Insurance.

### Variable Annuity

This annuity produces a monthly payment which fluctuates (up and down) with the income produced by a specific pool of assets. Thus, if interest rates increase to provide more income than estimated when the annuity was purchased, the annuitant will receive an increased monthly payment. Similarly if interest rates drop below the original estimate the monthly payment will decrease. The amount will also be responsive to capital gains and losses. While the Teachers Insurance and Annuity Association pioneered successfully in this method in the United States, the idea does not appear to have taken hold in Canada. Perhaps individuals are reluctant to enter into an arrangement in which payments may decrease while their living costs are unlikely to move in the same direction. Queen's University uses a variable annuity for the money-purchase component of its plan, but subject to a minimum guarantee on a defined benefit basis. The university reports (Brief 227) that: "The plan so far, has not only been able to cover all anticipated liabilities but, with a reasonable level of fund performance, should, in the future, provide some protection against inflation for pensioners."

### Participating Annuity

A participating annuity provides a guaranteed monthly payment amount, but also gives the annuitant the benefit of fund earnings in excess of some assumed rate of return. Investments are usually of the fixed income type; hence it is feasible to share gains and not losses - in contrast to the variable annuity which is commonly based on equities which have no specified maturity value or interest rate. The annuity is funded conservatively; that is, the initial guaranteed amount will be low in contrast to a non-participating annuity. However in times of rising nominal interest rates the participating annuity provides some inflation protection for retired pensioners in the same way as the "excess interest" on the retired lives account as discussed in Chapter 10. In both variable and participating annuities the annuitants may benefit from any mortality gains of the fund, that is, if annuitants on average die sooner than expected.

The Commission is of the opinion that the person entitled to a monthly payment, whether as an individual annuitant under a registered pension plan or an RRSP, should have the right to elect a form of annuity best suited to individual needs, subject to survivor spouse options mentioned below. The Commission therefore recommends that the Pension Benefits Act be amended to require the pension plan to offer to the member at retirement a pension on which the monthly payment amount may vary as an escalated annuity or a participating annuity where the pension plan sponsor chooses to buy an annuity from an insurance company



to satisfy its pension obligation. Where the pension is paid out of a pension fund the pensioner should have the option of a participating annuity as recommended in Chapter 10. An escalated annuity may also be offered if the pension plan so provides. The variable annuity should not be made available as a form of benefit under a pension plan because of the lack of guarantee of a basic pension payment.

The same annuity options should be part of the design of the mandatory plan. Insurance company rates would have to be monitored to ensure proper minimum guarantee levels.

A change in the form of benefit along these lines not only would serve as inflation protection but would satisfy pensioners that additional interest earned on what they consider to be their capital would be benefiting them directly.(8)

### Women and the Life Annuity

Because pension benefits must be taken in the form of lifetime payments, life expectancies are an essential element in calculating their cost. In Canada life expectancies for females at age 65 exceed those for males by some four years. Thus the total cost of the same pension payable to a woman is greater than that for a man. For this reason it is argued that women are not being discriminated against in the higher rate for annuities purchased under defined contribution (money-purchase) pension plans and RRSPs.

The Task Force on Employee Benefits under Part X of the Ontario Employment Standards Act decided that there must be equality in dealing with male and female employees either for cost or for benefits but not both. Thus in defined benefit plans A, a woman, and B, a man, with the same work history and salary must receive the same monthly benefit in retirement. The cost to the employer, however, will be greater for the woman than for the man based on normal life expectancies. Under a defined contribution plan the employer will make equal contributions for A and B, but at retirement A will receive a smaller monthly payment than will B. Because A has less income in retirement than B, it is argued that the woman is thereby treated as a second-class citizen. One means of resolving the dilemma may be the use of combined or "unisex" mortality tables. That solution, while taking into account the same statistical facts, would simply disregard the sex of the individual when used to compute the cost of an annuity for that person. Put another way, mortality risks would become "pooled" for all members of the group at any given age, and the male-female differential would disappear in the average. A corollary of such a change is that its entire cost, apart from the administrative adjustments, would be borne by future male annuitants; that is, the increase in annuity payments for women would be matched by a decrease in annuity payments for men.



The Commission received several briefs advocating the removal of what was seen as discrimination against women in defined contribution plans. The Ontario Confederation of University Faculty Associations advanced a number of arguments for the use of unisex mortality tables in calculating annuities. First,

"Women should not be disadvantaged by having the characteristics of the class attributed to them as individuals. This applies in insurance as well as in other employment-related areas; sharing of risks involved should be within the class of all those insured and not restricted by sex."

Secondly, the brief points out that the criteria of "average man" and "average woman" are not acceptable for employers when hiring workers, and should be similarly prohibited in the determination of pensions. While the average woman may live longer than the average man, it is a fact that 81 per cent of male deaths after age 65 are matched; only 9-1/2 per cent of women will live longer than the matched group. From these observations it is argued that:

"Public policy embodied in the anti-discrimination legislation requires that the burden of supporting the 9 1/2 per cent of the population who are longer lived be shared by the entire population, rather than putting the whole burden on the 40 1/2 per cent of the population who are like the long-lived group in sex but not in longevity."

Thirdly, the law may determine what splitting of the population into groups for insurance rating should be permitted. Public policy, embodied in the law, may allow some forms of group splitting to encourage a certain type of behaviour. For example: "charging owners of frame houses more than owners of brick houses for fire insurance encourages the choice of safer building material." That rationale does not apply, however, to the area of annuities:

"But there is no desirable behaviour which is encouraged by splitting up the population by sex and charging more for annuities for women than for men, and therefore no public interest in allowing such a split. On the contrary splitting the population by sex for pension purposes is a device for allowing employers to discriminate against women, which is against public policy."(9)

The Commission is strongly of the opinion that the result of applying separate mortality tables for annuity purposes is unacceptable in the light of public policy today. Therefore it is unnecessary to pass judgment on the validity of the mortality tables now in use or to determine the extent to which their use may discriminate against women. (The same tables produce lower life insurance premiums for women, but it is questionable whether this practice is discrimination against men.)

Since it is clearly desirable that men and women be treated equally in the purchase of annuities, the Commission is prepared to recommend that unisex mortality tables be employed as the basis for all annuities provided through the proposed mandatory pension plan. In the absence of such a stipulation, the government-imposed program would yield sharply lower monthly payments for women than for men with the same history of contributions and investment earnings. We do not believe that result would be tolerated in any scheme that is required by law; it follows that the same law must preclude the use of separate male and female mortality tables for any purpose connected with the mandatory plan.

The government is in a position, through its control of annuity issuers doing business in Ontario, to require companies to sell annuities under the mandatory plan on a unisex basis, with no discrimination against women in the proportion of annuities sold. To avoid annuities being purchased on other than a unisex basis there would have to be a further requirement that all annuities purchased as benefits out of the mandatory plan would have to be purchased from a company licensed to do business in Ontario. If in time, as some people are persuaded, the stress of working life changes mortality patterns so that the gap in life expectancies between men and women narrows, we may expect a trend to the use of unisex tables in any event.

Meanwhile, there should be no question about the necessity of equalizing the potential benefit for men and women in any government program. Whether unisex mortality and annuity rates are equally essential for other pension arrangements is discussed in Chapter 16.

### Recommendations

The Commission therefore recommends that:

1. The non-commutable life annuity continue as the basic form of benefit for employer pension plans.
2. The Pension Benefits Act be amended to make available to every plan member on retirement the option of a participating annuity; and in addition, where the annuity is to be obtained from an insurance company, the option of an escalating annuity.
3. If the mandatory plan proposed in Chapter 12 is adopted, all issuers of annuities be required to calculate annuity values under that plan without regard to the sex of the annuitant on the basis of "unisex" mortality tables; and that the Employment Standards Act be amended as required to permit this specific exception to the rule governing sex discrimination in defined contribution pension plans.

## SURVIVOR BENEFITS

Those who advocate improved survivor benefits in employment pension plans do so on three basic grounds:

First, from the traditional position of assumed need in which the husband is seen as breadwinner and the wife as dependent. The assumption is that if the worker or pensioner dies and wages or pension cease the widow will be without means to maintain her standard of living.

Second, from an examination of average incomes of the elderly, the majority of whom are women and widowed. The assumption is that these women have low incomes because survivor benefits are inadequate.

Third, from a comparison between employment pension provisions for survivors in the public sector, where a 50 per cent "widow's pension" is almost universal, and the private sector, where only a minority of plans provide any survivor benefit.

In view of the changing role of women, the traditional assumptions of dependency will bear reconsideration. To an increasing extent women - whether married or not - are participating fully in the labour force and, where dependency exists, are not necessarily themselves in the dependent role. For our purposes, however, the social norms of the past cannot be ignored. Today's elderly and a great many of those now in their middle years established their life and work pattern at a time when married women generally were full-time home-makers, financially dependent on their husbands. As a result we find in many retirement income arrangements - including the Canada Pension Plan - some provision for continuity of income to the surviving spouse. A degree of dependency is assumed (now for widowers as well as widows) from the existence of a married relationship; that is, the death of the pensioner or annuitant is seen as giving rise to a need for income replacement. That this assumption is well-founded is obvious, whether or not the incidence of complete dependency in marriage is seen to have decreased or assumed to decrease still further in the future.

In practice the conventional approach to the question of survivorship distinguishes between death before retirement and death after a pension has commenced. While some plans may provide identical or nearly identical benefits to the survivor in either eventuality, it is often the case that the act of retirement is seen to involve a greater range of choice for the member as to the form in which the pension will be taken. Before retirement the possibility of death is likely to be regarded simply as a risk to be covered (if at all) by some automatic form of benefit, payable without any prior election on the part of the employee. In the following discussion we shall make the same distinction between pre-retirement and post-retirement death benefits, without however approving all the current practices based on that distinction.



## DEATH OF EMPLOYEE BEFORE RETIREMENT

A variety of provisions may be found for survivor income where an employee dies before retirement. Table 1 shows the frequency of the different types in the public and private sectors for the years 1972, 1976, and 1978. The introduction of equality requirements under the Employment Standards Act has removed differences in treatment of male and female survivors, although the term "widow's pension" is still in common use. Where the term "spouse" is used in the text it refers to "spouse" as defined in the employment pension plan under which benefits are to be paid.

From Table 1 we see that the prevalence of specific pre-retirement death benefits changed only slightly between 1972 and 1978. Most notable is the high incidence of surviving spouse pensions in the public sector: 86.6 per cent (members) compared with 30.3 per cent in the private sector. Provision for refunding the employee's own contributions was made in plans covering (in 1978) 11.9 per cent of members in the public sector, but 22.2 per cent in the private sector. In the period covered there was a moderate decrease in the relatively small number in both sectors entitled to a refund of vested employer contributions in addition their own. In the private sector, however, there was an increase in the proportion of members in plans (non-contributory) providing for a refund of vested employer contributions alone.

While all plan members in the public sector were covered by some death benefit provision, 29.3 per cent in the private sector were not entitled to any benefit on death before retirement. Of the latter we know (from other statistics) that 58.7 per cent were in non-contributory plans; there were no employee contributions to be refunded, and the plans in question made no other provision for survivor benefits.

These statistics can tell only part of the story. The fact that a death benefit is provided says nothing of its adequacy - or even its availability to the short-service employee. Where contributions are refunded, the payment may be sufficient for little more than the immediate expenses associated with the employee's death; in many cases it is too small to be regarded realistically as income replacement. Similarly, a surviving spouse's pension - even at 50 per cent of the employee's accrued pension - will have little value as income replacement if the accrued entitlement is not substantial. In the case of a ten-year employee in a plan whose normal benefit is two per cent of final average pay per year of service, a 50 per cent survivor pension would amount to less than ten per cent of the individual's terminal salary rate.

Furthermore, the tables do not disclose the extent to which group life insurance is used as a substitute for or in combination with pension benefits to protect the dependents of employees. As a result it cannot be inferred directly from these statistics that public sector em-



Table 1  
Benefits to Survivor on Death of Employee Before Retirement by Sector, 1972, 1976, and 1978, Ontario

Type of Benefit	Public sector						Private sector						Both sectors					
	Plans			Members			Plans			Members			Plans			Members		
	1972	1976	1978	1972	1976	1978	1972	1976	1978	1972	1976	1978	1972	1976	1978	1972	1976	1978
No benefit	.7	-	-	-	-	-	9.4	11.2	12.6	27.2	28.9	29.3	9.2	11.1	12.4	16.0	17.3	17.9
Refund of employee contributions	20.1	19.2	20.1	9.8	10.6	11.9	27.7	29.1	28.4	25.0	22.9	22.2	27.5	28.9	28.3	18.8	18.0	18.3
Refund of vested employer contributions	1.5	3.2	2.5	-	.1	.1	12.6	10.6	10.2	5.0	6.4	6.9	12.4	10.5	10.1	2.9	3.9	4.2
Widow's pension	25.5	31.2	31.9	87.5	87.8	86.6	4.7	6.3	7.6	29.8	29.9	30.3	5.0	6.0	7.9	53.7	53.1	52.1
Refund of employee contributions and vested employer contributions	51.9	46.4	45.3	2.1	1.4	1.2	45.1	42.2	40.7	10.6	9.5	9.0	45.2	42.3	40.8	7.1	6.2	6.0
Other	-	-	-	-	-	-	.3	.3	.3	2.1	2.1	2.0	.3	.2	.2	1.2	1.2	1.2
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Royal Commission on the Status of Pensions in Ontario, prepared from Statistics provided by the Pension Commission of Ontario.

ployers, by virtue of the relatively high incidence of survivor pensions in their plans, in fact provide more benefits in terms of average value to the families of deceased employees. Even if group insurance data could be correlated with the above statistics, the question of relative effectiveness would remain: a lump sum payment and an equivalent monthly pension may be seen as quite different in terms of a survivor's particular circumstances, and any generalization would be dangerous.

#### DEATH OF THE EMPLOYEE AFTER RETIREMENT

Compared with death before retirement age, death after retirement is often regarded as having more serious and permanent financial consequences for the surviving spouse. Hence, we find in many plans a reliance on benefits of a transitional nature (cash refunds or life insurance payouts) for the survivors of active employees, but an emphasis on income maintenance for protection after retirement. Once again we find the concept of assumed need: the pensioner usually carries little or no group life insurance into retirement, and age may limit or preclude the survivor's participation in the work-force.

The frequency of various post-retirement survivor provisions is shown in Table 2. Again we see that in 1978 nearly 84 per cent of plan members in the public sector had a "widow's pension" provision while only 20.7 per cent of members in the private sector were similarly covered. All plan members in the public sector were entitled to some benefit but 25.4 per cent in the private sector had no such protection. While 30.3 per cent of members in the private sector were furnished with a widow's pension on death before retirement only 20.7 per cent had such coverage on death after retirement; presumably the difference reflects the common use of a guaranteed term for the pension rather than a designated survivor benefit. In all, some 45 per cent of members in the private sector were in plans whose normal form of pension was one payable for a minimum of five to ten years.

One might infer from the statistics that the two leading forms of post-retirement survivor benefit - the "widow's" pension and the guaranteed or "term certain" provision - are in some measure comparable as to value and effectiveness. In fact, however, they are based on two entirely different assumptions. The purpose of a survivor pension as such is to meet an assumed need, and its overall value to the member depends on whether there is a surviving spouse and, if so, how long that person lives after the member's death. By contrast, the purpose of a guaranteed term is to ensure a return of the member's investment - his cash contributions in any case, often with an allowance for interest and perhaps some employer contributions. Assuming a given amount of retirement pension, a "widow's" benefit in most cases will be half that amount, and therefore half the amount payable under a term certain guarantee if part of the term remained. On the other hand, the spouse's pension will continue for that person's lifetime, whereas payments

Table 2

Benefits to Survivor on Death of Pensioner After Retirement by Sector, 1972, 1976, and 1978, Ontario

Type of Benefit	Public sector						Private sector (per cent)						Both sectors					
	Plans			Members			Plans			Members			Plans			Members		
	1972	1976	1978	1972	1976	1978	1972	1976	1978	1972	1976	1978	1972	1976	1978	1972	1976	1978
No benefit	3.8	2.4	3.3	.4	.2	.1	8.9	9.9	10.8	26.2	24.5	25.4	8.8	9.8	10.7	15.5	14.8	15.6
Pension payments for balance of guaranteed term in months:																		
Less than 36	-	-	-	-	-	-	.1	-	.1	-	-	.1	.1	-	.1	-	-	-
36	-	-	-	-	-	-	.2	.1	.1	.3	-	.2	.2	.1	.1	.2	.1	.1
37-59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	44.9	37.6	33.6	2.0	1.5	1.6	37.4	36.1	34.9	29.9	32.5	32.8	37.5	36.1	34.9	18.4	20.1	20.7
61-99	-	-	-	-	-	-	-	-	-	.1	.1	.1	-	-	-	-	-	-
100	.7	.8	.8	-	-	-	3.8	2.4	1.9	.8	.7	.1	3.7	2.3	1.8	.4	.4	-
101-119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	19.3	23.2	24.3	.8	.5	.4	38.7	41.2	41.5	8.5	10.8	12.1	38.4	40.9	41.3	5.3	6.7	7.6
Over 120	-	-	-	-	-	-	.5	.3	.2	-	-	-	.5	.3	.2	-	-	-
Employer contributions less pension paid	2.3	2.4	2.5	8.8	9.8	10.9	3.6	3.0	2.8	5.4	3.8	3.5	3.6	3.0	2.8	6.8	6.2	6.4
Employee and employer contributions less pension paid	-	.8	-	-	-	-	.6	.6	.6	1.4	1.1	1.1	.6	.6	.6	.8	.7	.6
Widow's pension	25.5	28.8	30.2	87.1	84.0	83.3	2.5	3.4	4.3	19.2	21.8	20.7	2.8	3.8	4.7	47.2	46.7	45.0
Option chosen	2.3	2.4	2.5	-	.1	.1	2.3	1.6	1.5	1.1	1.1	1.1	2.3	1.6	1.5	.7	.7	.7
Other	.7	1.6	2.5	.4	3.4	3.2	.6	.6	.5	6.3	2.6	2.3	.6	.6	.5	3.9	2.9	2.6
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Royal Commission on the Status of Pensions in Ontario prepared from Statistics provided by the Pension Commission of Ontario.

on a guaranteed-term basis end when the pensioner dies if the term has expired, or will cease at the end of the specified term. By the same token, a spouse's pension ceases with that person's death, while a term certain guarantee can yield benefits to other dependents through the member's estate if the spouse dies before the end of the term or if there is no spouse. Inevitably, criticisms of one or the other of these benefit forms arise from its failure - more properly its inherent inability - to satisfy the needs of all recipients; that is, to ensure in all cases that the member's "equity" is returned and at the same time provide continuity of income to the surviving spouse.

The termination of payments to a survivor at the end of the guaranteed period is analogous to the former cessation of the Spouse's Allowance six months after the death of the pensioner. Two briefs, from the Ontario Committee on the Status of Women (Brief 160) and the Professional Institute of the Public Service of Canada (Brief 175) criticized the guaranteed term approach because it did not protect the survivor who outlived the guarantee, while it often provided payments in the case of a person with no spouse, where presumably there was no "need." On the other hand, other briefs criticized provisions under which survivor pensions cease on remarriage of the survivor.

In these criticisms we see the ambivalence between entitlement arising from work and entitlement based on status in which need is assumed. The guaranteed term recognizes an entitlement of the pensioner's estate, and through it his or her survivors, whether dependents or not, to benefit from the accrual of benefits by the employee during his or her working life. It does not pretend to provide for the continuing need of any of the pensioner's survivors. On the other hand, the spouse's pension which ceases on remarriage is attacked for encouraging a survivor to live in an extramarital relationship to retain pension benefits. But a remarriage provision is consistent with the needs basis of survivor benefits, since remarriage implies a new source of financial support. The same assumption is made where, as in the Canada Pension Plan, survivor benefits are again payable if the new marriage ends with divorce or death.

Although changes to the Employment Standards Act following the report of the Task Force on Employee Benefits were directed at removing discrimination by marital status, the exception made for survivor benefits has allowed the ambivalence in survivor benefit philosophy to continue, as well as differences in benefits and cost as between married persons and single, divorced, and widowed persons.

Before discussing discrimination, however, one must establish a rationale for providing survivor benefits: are they to be based on need or entitlement? If entitlement, then all plan members should have an absolute right to the death benefit. To provide the benefit as a continuing pension will be a problem because of the difficulty of forecasting the life expectancy of various possible beneficiaries. If



individual entitlement were to be the sole rationale, there would be a sharp decline in survivors' pensions and a move towards guaranteed terms. On the other hand, if the rationale for survivor benefits is need, one must distinguish between actual need and need assumed because of marital status. Most survivor benefits in the public sector and 20 per cent in the private sector have been designed on the assumed need of the widow who was dependent on her husband as the breadwinner and the pension provider. In the Commission's opinion this design accurately reflected the situation for the majority of today's elderly, many of whom are in fact disadvantaged by the lack of widow's pensions in the private sector. Any moves to improve this situation, however, will require consideration of future patterns of work and dependency.

The Commission noted with interest that the Cofirentes Report, proposing changes in the Quebec Pension Plan, recommended that survivor benefits cease after two years except where dependent children were involved. This is a remarkable change from a continuation of benefits for life to short-term assistance to allow establishment or re-establishment of the dependent in gainful employment. In the Commission's opinion such a change may become feasible if the trend towards increasing female work-force participation continues. At present, however, there is the reality of persons who are at or approaching age 65 and who cannot establish themselves among the gainfully employed because of general unemployment, lack of skills, or infirmity. The Commission endorses the attitude that over time there should be a move away from the assumption of need arising out of marital or quasi-marital status and adoption of entitlement as the rationale. If so, there is likely to be a phasing-out of designated survivor pensions except for short-term benefits along lines proposed in the Cofirentes Report.

In the meantime the Commission recognizes both the need of today's elderly for continuance of a spouse's pension, and the support obligation of one spouse for the other. An eventual reassessment will have to be made of the effect of changing social patterns and whether the assumption of marital dependency is still appropriate.

## LEVEL OF BENEFITS

### Widow's Pensions

Many briefs stated that a widow's pension of 50 per cent was too low, and advocated changes in the level ranging from 60 to 100 per cent. The Commission favours a 60 per cent standard on the basis that a single person requires more than half the income a married couple needs. In the percentages advocated we see again the confusion between need and entitlement. As one brief pointed out, if the pensioner dies first the survivor gets a 50 per cent pension. If the spouse dies first, the pensioner continues to get a 100 per cent pension. One receives too little and the other too much on the basis of need. In terms of

entitlement, however, the plan member in the latter case receives no more than his due.

The Commission cannot accept the view that the low incomes of today's elderly would be increased significantly by changing the percentage levels. Quite apart from the coverage question we must realize that whatever the percentage level, it is a percentage of the accrued pension benefit of the employee. For those dying before retirement the accrued benefit may be very small, depending on salary levels, plan design, and years of service with the employer. Clearly, unless death occurs in the years close to retirement age, the needs of a survivor would be better served by group life insurance. The same is true in any case where the survivor's main need is for an opportunity to establish himself or herself in gainful employment. Even for survivors of those employees who die after retirement the pension benefit may be very small, again depending on salary levels, plan design, and length of service. The Commission was unable to obtain any specific data for monthly amounts currently paid as widow's pensions. Some inferences may be drawn however from 1976 taxation statistics for persons age 65 and over. Table 3 shows the percentage of total income by source for males and females 65 and over in Canada.

Table 3

Percentage of Total Income Assessed by Source for  
Persons Age 65 and Over, Canada, 1976

Source	Male	Female
	(Per cent of total)(a)	
Wages and salaries	18.1	7.5
Old Age Pension	17.8	27.9
CPP/QPP benefits	6.8	4.5
Other pensions and superannuation	16.5	11.0
Bank interest	14.3	20.4
Bond interest	4.2	7.0
Taxable amount of dividends	4.3	7.4

a Figures will not total 100 per cent since not all items of income, e.g., rental income, are included.

Source Revenue Canada, Taxation Statistics, 1976.

We can see that for women, who are more likely to be dependents, pension income from other than government programs was only 11 per cent of a level of which the Old Age Pension represented 27.9 per cent.

The conclusion must be that, in the same way as coverage alone is no assurance of an adequate pension, a higher percentage rate for

calculating survivor benefits would give no assurance of an adequate level of survivor income.

### Refund of Contributions

Employees with a spouse are most favoured when they are in a plan which provides a widow's pension. Those without a spouse are better off in a plan which provides for a pension with a guaranteed term. Their beneficiaries will receive the balance of the pensioner's own contribution's, usually with interest, if the pensioner dies within the guaranteed period. Less fortunate are those who die before retirement entitled only to a return of their own contributions. Then too, there are many who die before retirement with no benefit. In the case of contributory plans the Commission considers the latter arrangement confiscatory; in non-contributory plans, of course, there are no employee contributions to be refunded. Whether or not a death benefit should be payable under a non-contributory plan will depend on how far the principle of deferred wages is carried. The same principle will apply in determining whether employees in contributory plans have a right to any of the employer's contributions, vested or non-vested.

Refund provisions are highly diverse. In general, the amounts refunded must be regarded as having only a short-term function. They cannot be assessed in terms of adequacy of income replacement.

### POSSIBLE SOLUTIONS

Many groups urged the Commission to recommend legislation requiring as a minimum:

- a) that every employment pension plan provide a spouse's pension of at least 50 per cent of the accrued pension benefit for death both before and after retirement; or
- b) that every employment pension plan make the benefit a joint and survivor annuity for every member having a spouse at the time of retirement. Under a joint and survivor annuity the same amount is payable, usually as a monthly benefit, during the joint lives of the two spouses and during the life of the surviving spouse.

In the first proposal the Commission understands that the pension entitlement at retirement would be the same for A who is divorced and B who is married, all other things being equal. Therefore the employer of B would be assuming an additional cost to provide B's spouse with a survivor benefit. The difference is based on an assumed need arising from marital status. No consideration is given to the possibility that



A is supporting a former spouse.(10) This proposal would apply to benefits on death both before and after retirement.

The second proposal applies only to benefits on death after retirement. Under this proposal A who is divorced would receive a full pension. B who is married would receive a lower monthly pension payment than A because the joint life expectancy for B's spouse would normally exceed A's single life expectancy. In contrast with the first proposal the joint and survivor requirement means that although A and B will not receive the same level of benefit, the costs will be the same. Those who advocate a mandatory joint and survivor form of annuity hold that this measure of protection to the survivor should not be left to the employee's discretion. Faced with the choice of a survivor option with a consequent reduction in the immediate pension, the retiree will usually choose the higher payment of the straight life annuity.

Another group advocated to the Commission the adoption of provisions similar to those established under the U.S. legislation, ERISA. Under ERISA the minimum requirements are as follows:

#### Death of an Employee Before Retirement

When a plan does not have a spouse benefit payable on the death of a participant before retirement (under which the surviving spouse would receive not less than 50 per cent of the pension amount payable, if the participant retired early and elected a joint and survivor annuity), such plan must permit an employee to elect, effective with the later of the plan early retirement age or 10 years before the plan normal retirement age, a form of benefit whereby 50 per cent of the amount payable to the participant, if the participant retired early and elected such a joint and survivor annuity, would be payable to the participant's surviving spouse upon the participant's death. The plan may provide for an actuarial reduction in the participant's normal retirement benefit to reflect the value of the spouse benefit.

#### Death of the Employee After Retirement

When a plan does not have a normal form of benefit of joint and spouse survivor (under which between 50 per cent and 100 per cent of a deceased pensioner's benefits continue to the surviving spouse), then, unless the employee elects a different form of benefit, benefits under the plan will be computed and paid as if the joint and 50 per cent spouse survivor form (under which 50 per cent continues to the surviving spouse) had been elected by the retiring participant. The plan may provide for an actuarial reduction according to the form of benefit; and it may set a minimum age which the surviving spouse must attain in order to receive annuity payments.

Under ERISA therefore, no plan is required to provide an extra-cost spouse's benefit. Instead, for death before retirement the employee



must be permitted to elect such a benefit, and for death after retirement to avoid a spouse's benefit the employee must elect against it. In both cases the plan may make an actuarial reduction to cover the cost of the spouse's benefit.

The Ontario Advisory Council on Senior Citizens (Brief 154) and others point out that it is too rigid to make the joint and survivor annuity form mandatory. They argue that other arrangements may have been made for the protection of the spouse both by the employer and employee or that in some circumstances the spouse will have sufficient separate means and would not require the pension, while the pensioner does. In other cases, if the life expectancy of the spouse is known to be shortened, the reduction of the pensioner's basic benefit would not be warranted. For these reasons and because of a general reluctance to interfere any more than necessary with employment pensions, and in particular if the proposed mandatory plan is adopted, the Commission recommends that the joint and survivor annuity be the standard form of benefit which may only be displaced by election. The Commission also favours a range of choice of percentage level for the survivor portion, so that individuals may plan to suit their own circumstances. In default of individual selection, however, a survivor benefit of 60 per cent should be required.

The Commission favours an approach which would end discrimination on the basis of marital status in pension plans. This could be achieved by adopting the ERISA approach to elections so that spouse's benefits are provided at equal cost to the employer for married and unmarried, divorced, and widowed employees. Benefits for spouses would then be provided as determined between the spouses. This approach is consistent with the splitting of CPP credits on divorce, the Cofirentes recommendation for short-term survivor benefits, and a general decrease in dependency of women. However, the principle of need assumed from marital status is firmly entrenched in employment pension plans, particularly in the public sector; benefits based on that assumption will no doubt exist for some time even if, as the Commission suggests, the government take no steps to encourage them.

#### THE COMMISSION'S RECOMMENDATIONS

The chapter on vesting and the recommendations of the Commission in this regard reveal an endorsement of the individual entitlement approach though not necessarily of the deferred wage theory in its purest sense. The Commission is of the opinion that entitlements on death, both before and after retirement, are related to vested pension benefits; in fact we can see even less justification for failing to preserve rights on death than upon termination.

The Commission therefore recommends that the Pension Benefits Act be amended to require minimum benefits on death from employment pensions as follows:

#### Death of Employee Before Retirement

1. Where an employee dies before retirement and before being vested, the estate shall be entitled to a refund of his or her contributions with interest calculated year by year at one per cent below the annualized rate paid by chartered banks in Canada on non-chequing accounts and compounded annually. When the employee is in a non-contributory plan and is not vested at death his or her estate shall not be entitled to any payment unless the plan provides otherwise.
2. Where an employee dies before retirement, but after becoming eligible to receive a retirement pension either by attaining normal retirement age or by fulfilling the requirements for early retirement as provided in the plan, the spouse of any age shall receive as a pension 60 per cent of the pension to which the employee would have been entitled had he or she actually retired under the plan.
3. Where an employee dies before retirement and after being vested and leaves a spouse surviving, the spouse shall receive as a pension 60 per cent of the pension to which the employee would have been entitled on retirement, payable when the older of the employee or the spouse would have attained or attains the age of 65 or at the normal retirement age under the plan, whichever is earliest.
4. Where an employee dies before retirement and after being vested and does not leave a spouse or the spouse dies before receiving the pension provided in (3) above, the estate of the employee, or where the spouse dies after being entitled but before receiving the pension, the spouse's estate, shall receive the amount which would have been required at the employee's death to purchase the spouse's pension by way of an insurance company annuity or the contributions of the employee with interest as calculated in 1 to the date of death, whichever shall be the greater. This provision shall apply to both contributory and non-contributory pension plans.

#### Death of Employee After Retirement

1. All plans shall provide as the normal form of pension benefit under the plan a joint and last survivor annuity with a choice of the percentage level of the original pension benefit for the survivor benefit of not less than 60 per cent and not more than 100 per cent. In the event no percentage level is designated

by the employee the percentage shall be 60 per cent. The plan may provide for an actuarial reduction so that the cost of the retirement benefit to a person without a spouse and a person with a spouse is the same.

The normal form shall be taken under the plan unless another form of benefit available under the plan is elected by written consent of both the employee and the spouse.

2. Where an employee dies after the pension is in payment without leaving a spouse, no benefit shall be paid to the estate of the deceased employee unless the plan so provides.

It will be noted that the recommendations appear to result in more favourable treatment for the employee dying before retirement because on the death of an employee after retirement who does not leave a spouse, no payment is made to the estate in recognition of the employee's contributions. There are two reasons for this. First the employee by receiving pension payments has received what was intended, that is, replacement income in retirement. If there is no spouse the need for replacement income has usually ceased. Secondly, in the case of the employee who dies before retirement the contributions may be regarded as savings which may be needed for children, parents, or other dependents not specifically included under the protection of the pension plan. By the time the employee retires, the dependency of family members other than a spouse usually has ended. Similarly, the mandatory provision for a spouse's pension where the employee dies before retirement recognizes that a spouse is more likely to be dependent or less likely to have established separate means in the earlier years for providing his or her own retirement income. Note that this approach diverges from the CPP which provides a survivor benefit for immediate needs. The Commission's recommendations see retirement income for the spouse as the goal in an employment pension plan. Much as the Commission might agree with the Cofirentes Report that survivor benefits on the death of an employee before retirement should be short-term, we nevertheless perceive the need of the spouse benefit as a continuing one.

#### INTEGRATION OF EMPLOYMENT PENSION BENEFITS

Integration is a plan feature by which payments from government programs are dovetailed with payments from employment pensions to provide a desired level of benefit, usually based on the continuance of a certain percentage of pre-retirement income. Generally if an employer is making payments to a government program, the resulting benefits are seen as part of the benefit "package" provided for the employees.

The controversy over whether employment pension benefits should be "stacked" on top of benefits from government programs or "integrated" with them raged when the White Paper on the Canada Pension Plan was



introduced. Before that time integration was not frequent, since Old Age Security pensions were low, and were payable only at age 70. ("Level income" options were in common use, however; a retiree might elect to take an actuarially increased pension, reducing at age 70 by the OAS amount.)

With the introduction of the CPP many employers integrated employment pension benefits with CPP benefits on the principle that the employment pension plan was designed to provide a retired employee with a replacement income in retirement sufficient to ensure continuation of a measure of pre-retirement standard of living. To do this it was reasonable in setting plan benefit levels to take into account benefits from government programs, particularly where the employer was contributing directly, as with the CPP. To take a much simplified example, let us suppose that an employer had in force a pension plan which generated pensions of 60 per cent of earnings for long-service employees. If the plan were not integrated the pensions and gross replacement ratios in 1979 (before taxes) would be roughly as shown in Table 4.

Table 4  
Examples of Total Pension Income without Integration (1979)

Earnings	OAS		CPP		Private		Total	
(Dollars)	(Dollars)	(Per cent)	(Dollars)	(Per cent)	(Dollars)	(Per cent)	(Dollars)	(Per cent)
6,000	2,000	33	1,300	22	3,600	60	6,900	115
12,000	2,000	17	2,600	22	7,200	60	11,800	99
20,000	2,000	10	2,600	13	12,000	60	16,600	83
40,000	2,000	5	2,600	7	24,000	60	28,600	72

Source Royal Commission on the Status of Pensions in Ontario, prepared by Laurence Coward.

The employer is likely to conclude, bearing in mind the tax and other valuable concessions available to pensioners, that the plan is too generous overall and that the relationship between pensions for low and high-paid employees is not appropriate, even acknowledging that replacement ratios should be higher for those at the bottom end of the earnings scale.

The following diagrams illustrate the result of full integration with OAS and CPP; CPP alone; one-half CPP; and stacking (no integration). CPP is taken as 25 per cent of earnings up to the YMPE and OAS as 15 per cent.

With the stacked plan illustrated in Figure 1 the benefit formula needs adjustment if the employer wishes to provide anything like equal replacement ratios for all employees or ratios that fall slowly with



earnings. However full integration is not the answer. Full integration or offset of both OAS and CPP pensions from the employment pension goes to extremes in the other direction and produces the result shown in Figure 2. This integration is most unlikely to be adopted in practice because the replacement ratios based on net after tax income would actually be higher for those with higher incomes than for those with lower incomes. Not only would some employees obtain no additional benefit from their own CPP contributions, but the employer would benefit excessively from OAS and CPP including recent improvements. Often there is no integration with OAS at all as in Figure 3 and often only one-half of the CPP (the part paid for by the employer) will be integrated with the result shown in Figure 4.

## INTEGRATION METHODS

A number of ways of integrating benefits from government programs and employment pensions have developed which provide a resolution between the extremes shown in Figures 1 and 2. There are two broad categories of methods: benefit integration and contribution integration.

### Benefit Integration

Integration may be accomplished by combining the benefits received from government programs and the employment pension plan to achieve the desired goal. This combining can be done through amending the employment plan benefit formula for the calculation of the pension (the Step Rate Method) or by deciding the amount of employment pension to be paid and deducting from this the amount of the government pension to be integrated (the Offset Method).

#### Benefit Step Rate

The Ontario Public Service Superannuation Plan uses a step rate method of benefit integration. A pension is calculated for each year of service at 1.375 per cent on earnings up to the YMPE and 2 per cent on excess earnings. Service is limited to 35 years and the last five years' average earnings is used. However, the 2 per cent rate applies on all earnings for years of service prior to 1966 when the Canada Pension Plan was introduced. It should be noted that the integration will not be fully in effect until year 2001, that is 35 years from 1966. The result in Figure 3 is typical of the results of the most usual integration methods.

#### Benefit Offset

For this method the pension is calculated by a formula in the plan and then reduced by a portion of the anticipated government benefits. As we have seen, offset of full OAS and CPP is unlikely, but the offset

Figure 1  
Effect of Stacking (No Integration)

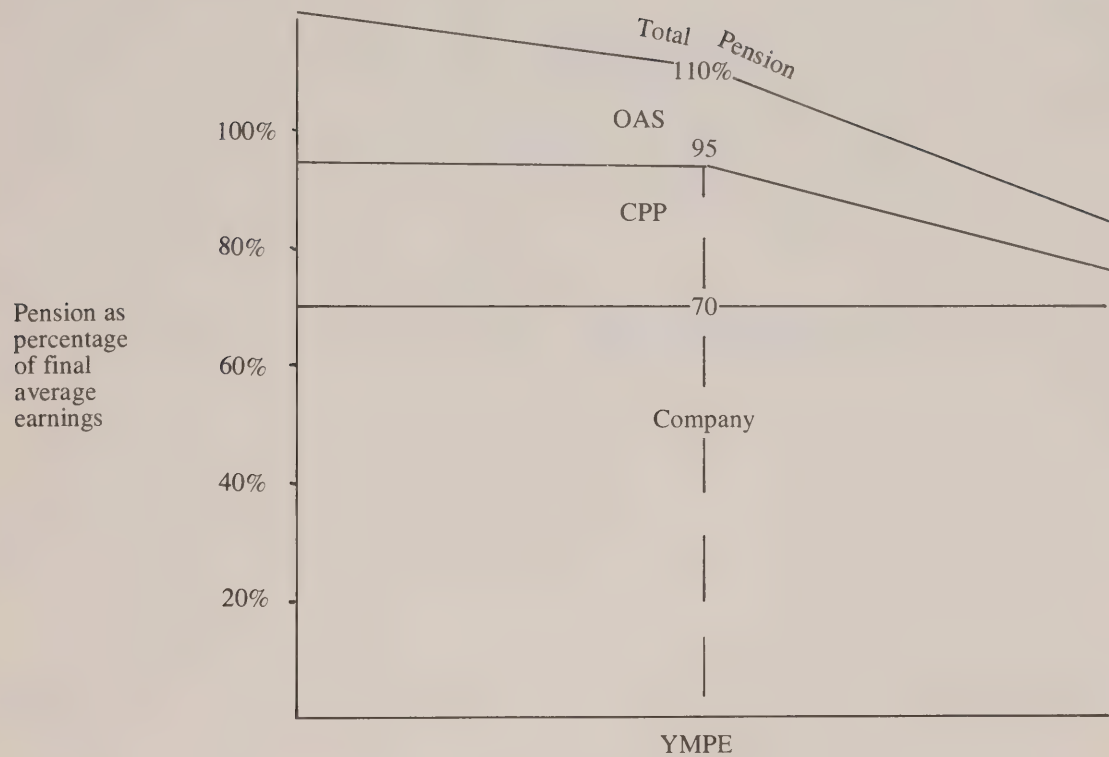


Figure 2  
Effect of Full Integration

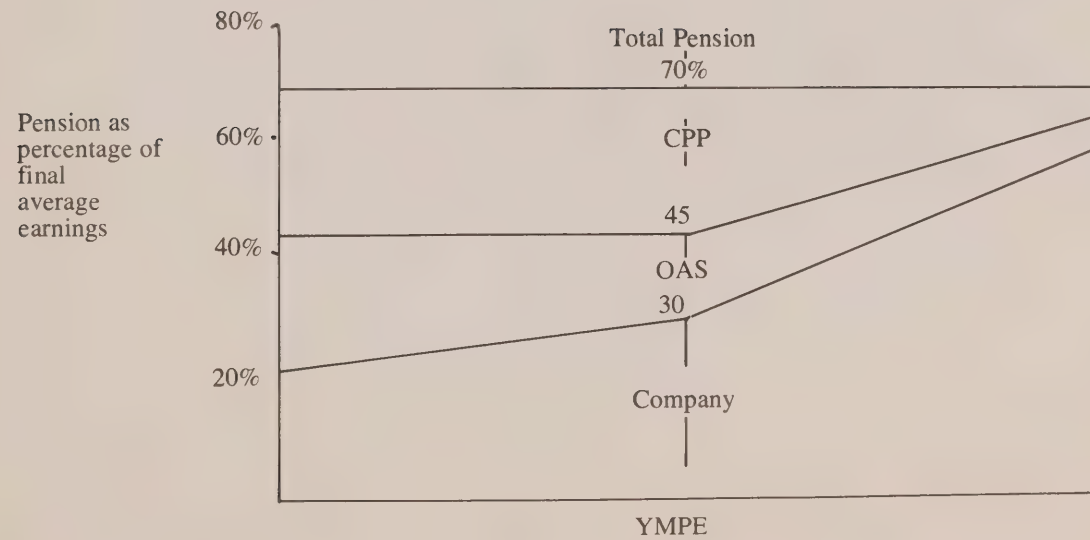


Figure 3  
Effect of CPP Integration

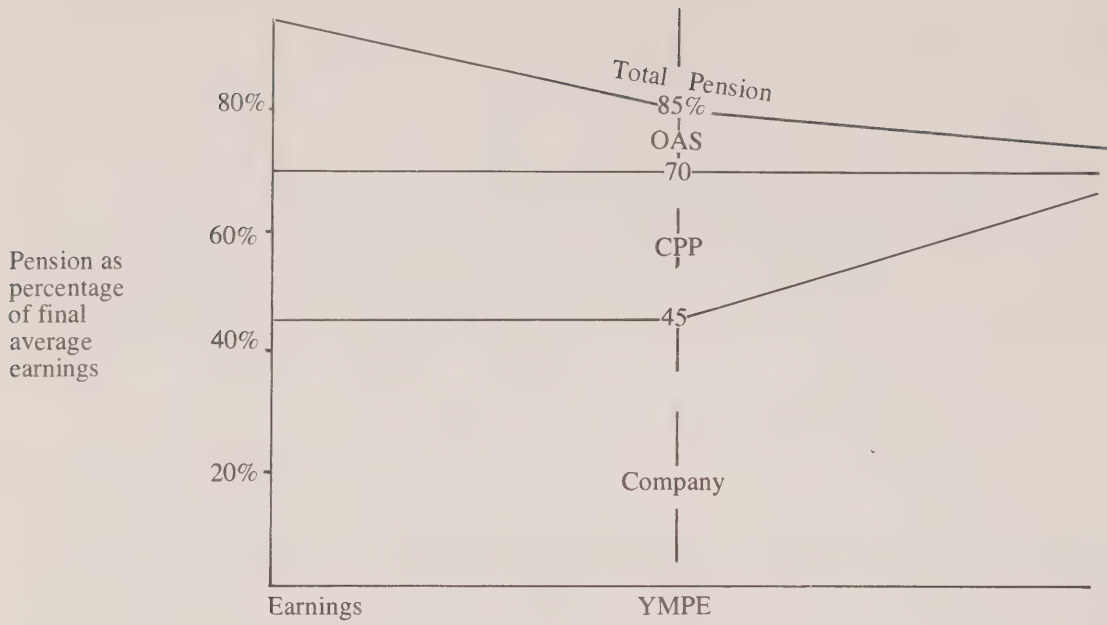


Figure 4  
Effect of Partial CPP Integration

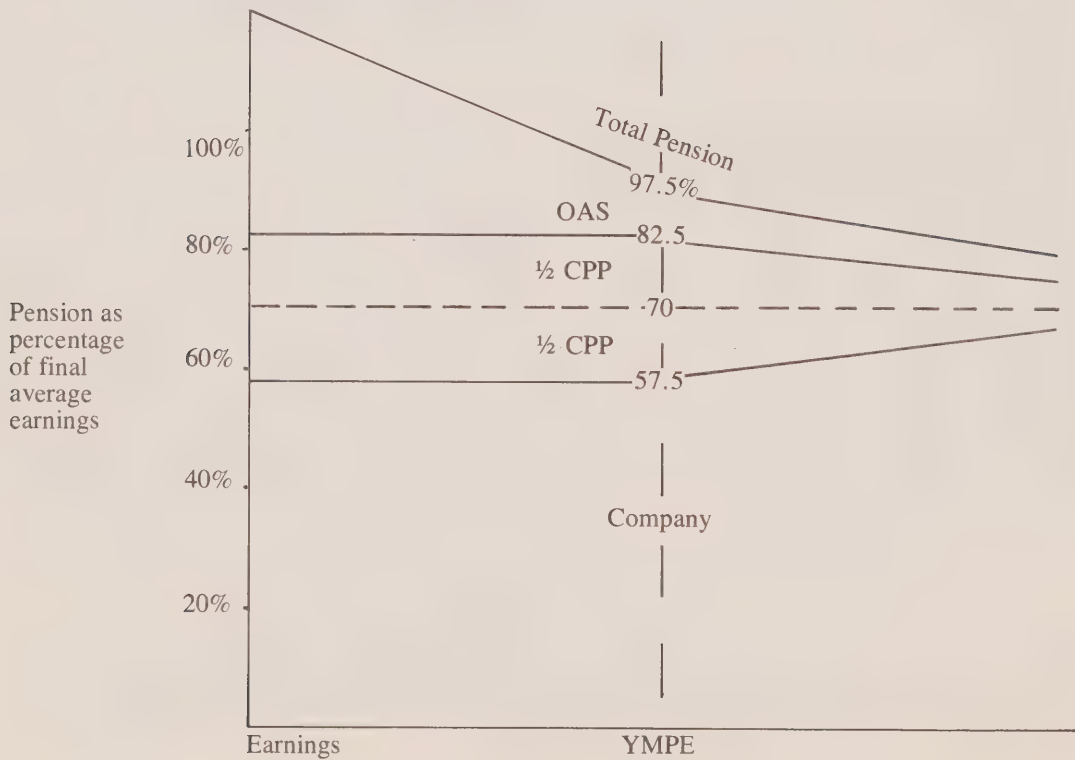
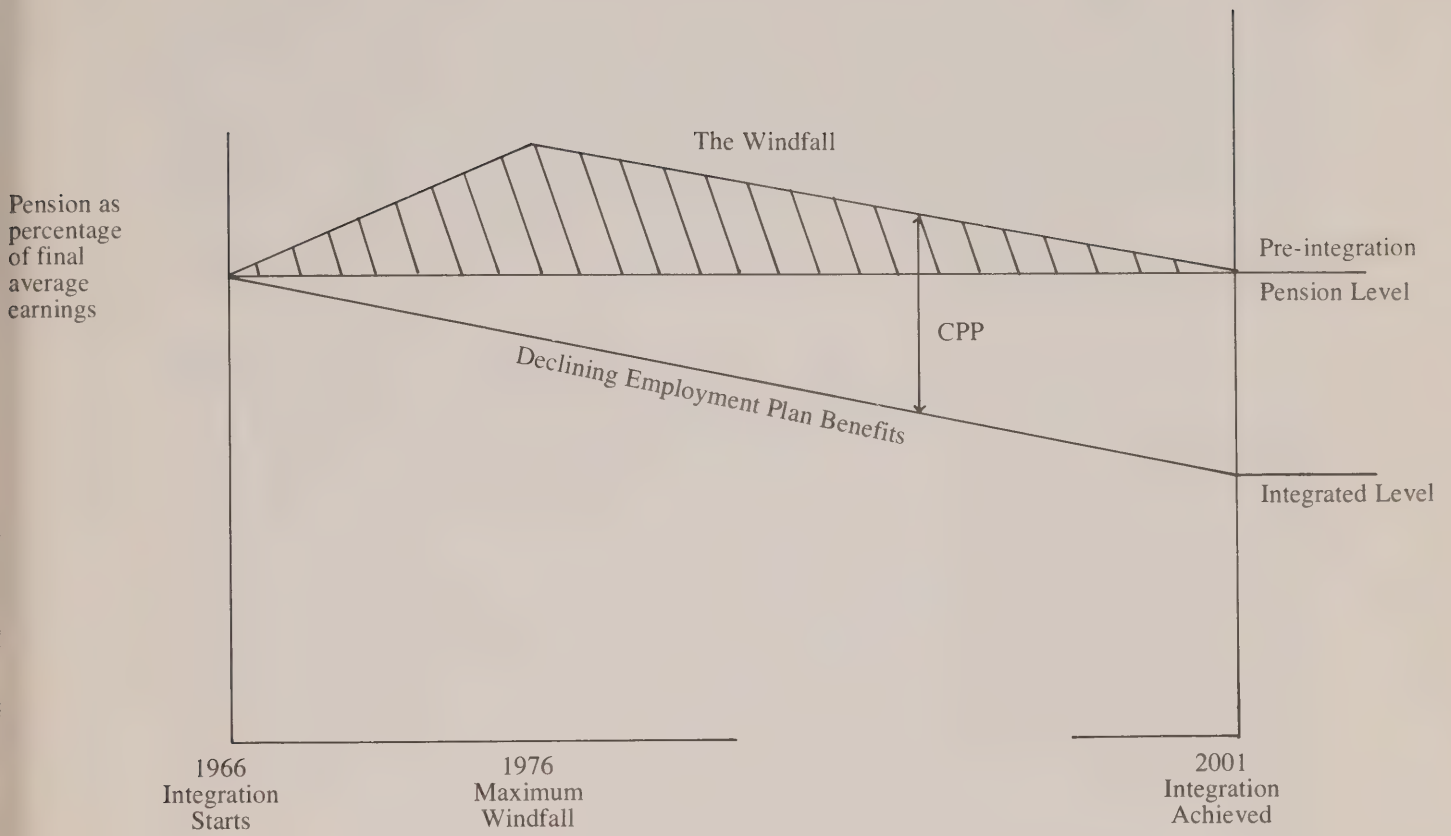


Figure 5  
Windfall Arising from Step Rate Integration





of CPP alone or a percentage of CPP may give reasonable results. (See Figure 4.) Since the employee contributes equally with the employer to the CPP, the employee is usually deemed to have paid for half his benefit and the offset is 50 per cent of the CPP benefit. Only the CPP benefit earned while the employee was in the employer's service should be taken into account, since it would be unfair to deduct any part of the CPP attributable to earnings with another employer or from self-employment. Hence the plan should indicate how much CPP benefit is deemed to be earned during service by employees who retire before age 65, terminate with vested rights or enter employment after the year 1965. Where this is not done (non-proportional benefit offset) severe inequities may arise.

### Contribution Integration

This method adjusts the rate of contributions to the employment plan by taking into account the contribution rate of the employee to the CPP, for example, 1.8 per cent on earnings up to the YMPE and 5 per cent thereafter.

### Contribution Step Rate

It is generally considered desirable that the reduced contribution rate in an integrated plan should be proportionate to the reduced rate of benefit, so that high and low paid employees get the same "value for money." An example is provided by the rates of contributions and benefits in the Ontario Hydro Pension Plan, shown in Table 5.

Table 5  
Step Rate Integration - Example of Contributions and Benefits

	Salary below YMPE (Per cent)	Salary above YMPE (Per cent)	Ratio
Pension per year of service	1.375	2.0	.6875
Employee contributions	3.4375	5.0	.6875
Ratio	.4000	.4000	

Source Royal Commission on the Status of Pensions in Ontario, prepared by Laurence Coward.

### Contribution Offset

A valid alternative is to offset the CPP contributions against the employment plan contributions. This method is usually found when the offset method is used for benefit integration but sometimes in other cases. For instance contributions under the Ontario Public Service Plan are 6 per cent of salary up to the YBE, 4.2 per cent of salary between the YBE and the YMPE and 6 per cent of salary above the YMPE, which is essentially the same as 6 per cent of all salary minus the employee's

contributions to CPP. Hence the plan uses the step rate method for integrating benefits but the offset method for contributions.

### Ineligible Earnings

In some plans a portion of earnings is ignored for pension plan purposes, that is in calculating both contributions and pension. The ineligible earnings may be a flat amount or may be a percentage of the YMPE in each year. If the ineligible earnings were \$2,500 the results of using this method would be similar to those shown in Figure 4 for someone retiring at present. However the ineligible earnings would eventually have to rise to about 35 per cent of the YMPE to produce the same results as step rate integration.

## INTEGRATION AND TYPES OF PLANS

All the methods described are applicable to defined benefit pension plans where the pension depends on wage or salary. In flat benefit plans where the pension depends on length of service but not on earnings, only the offset method is available and even this method is not widely used. None of the benefit integration methods can be applied to defined contribution plans, that is money-purchase and profit sharing plans. Defined contribution plans may however be integrated by providing that contributions otherwise payable to the plan will be reduced by the amount of contributions to the CPP. Thus a 5 per cent and 5 per cent money-purchase plan may be integrated by making the contribution from employer and employee each equal to 5 per cent of salary less 1.8 per cent of earnings up to the YMPE.

The choice of integration method is strongly linked to the type of pension plan. Statistics Canada, "Pension Plans in Ontario 1978," (unpublished) shows that in the public sector 96 per cent of employees are in defined benefit plans integrated by the benefit step rate method. In the private sector a much wider distribution of plan types and integration methods is found. From Table 6 we can see that 50 per cent of members of plans in the private sector are stacked (not integrated at all) while in the public sector less than 2 per cent of the membership is in a non-integrated plan.

## RETIREMENT BEFORE AGE 65

It is notable that the reduction of a pension to integrate with government programs does not usually take place until the employee reaches age 65 when the government benefits commence. If an employee retires before age 65 on a fixed pension his income is likely to produce a low replacement ratio until he or she reaches age 65 and receives OAS and CPP. For this reason, in most but not all integrated plans the downward adjustment does not come into force until the employee reaches

Table 6

Type of Pension Plan and Method of Integration with Canada Pension Plan in Ontario Private Sector, 1978

Type of plan	Not integrated	Benefit step rate	Benefit offset	Ineligible earnings (Number of members)	Contribution step rate	Other	Total plans
Final average	40,126	155,399	51,470	9,571	-	57,209	1,373
Career average	64,869	147,972	1,867	13,367	-	13,909	2,655
Money purchase	70,739	11	-	27	22,012	658	3,429
Flat benefit	323,406	-	16,866	-	-	299	832
Other types	15,760	-	-	3,066	712	11,568	378
Total	514,900	303,382	70,203	26,031	22,724	83,643	8,667

Per cent of all

members (1,020,883)

294

8

2

3

7

30

50

Source Statistics Canada, "Pension Plans in Ontario 1978," unpublished.

age 65 and qualifies to receive the government pension. The employee who retires early or whose normal retirement age is below age 65 often is entitled to a supplement or "bridge benefit" payable from retirement age to age 65. Where the employee's earnings do not vary widely, for example in most unionized groups, a stacked plan may be appropriate with or without a bridge benefit.

An alternative to the bridging supplement in a pension plan is a "notched" or "level income" option for those retiring before age 65. This allows the employee at his or her option to convert the pension into a larger amount payable until age 65 and a lower amount thereafter so as to coordinate with government benefits. The notched option was popular with employees retiring at age 65 when OAS was payable from age 70; but is now of less importance.

### Windfall Effects

#### Introduction of the Canada Pension Plan

Many employment pensions will not achieve full integration with the Canada Pension Plan until the year 2001 even though the full CPP benefits became payable in 1976. These employment plans are based on the rationale that the full pension accrues over 35 years of service and that the deduction to integrate should also accrue over 35 years but ignoring years of service before 1966. For example, the Ontario Public Service plan with step rate benefit integration provides 2 per cent of the best five years' average earnings for each year of service to a maximum of 35 years reduced by .7 per cent of the last three years' average YMPE for each year of service after 1965 to a maximum of 35 such years (for those earning above the YMPE). The reduction for long-service employees will eventually be .7 per cent for 35 years which is approximately equal to 25 per cent of the last three years' average YMPE, that is, a reduction equal to the CPP benefit.

There are two reasons for this approach and for the "windfall" received by those retiring between 1966 and 2001.

- a) Had the full CPP benefit been deducted during the 10-year transition period from 1966 to 1975, low-paid employees might have obtained no benefit accruals or might even have seen their benefits decrease. It would not have been acceptable for the employer to receive the entire advantage of the CPP benefits, especially as these benefits were highly subsidized in the early years.
- b) In nearly all contributory plans the employee contributions were reduced starting in 1966, but until then the employees had made full contributions. In view of this it was thought appropriate to leave unchanged the benefit formula for service prior to 1966.



For most methods of integration therefore, employees who retired at the end of 1975 only felt the effect of 10/35ths of the full integration. Having contributed to the CPP for only 10 years, the value of CPP benefits was much greater than that of their own and the employer's contributions; in effect they received the maximum benefit for the minimum contributions. The position of those retiring in the near future is still very favourable, since they receive the same 25 per cent CPP benefit as those retiring after 2000 having made 35 years' of contributions.

Figure 5 illustrates how the windfall arises with step-rate integration and how employees retiring after 1966 receive slowly decreasing percentages of pay from the total system. This has not given rise to any serious problem because of the rising CPP benefit levels resulting from the increasing YMPE. However, any additional improvement in CPP brought in immediately or phased in over a relatively short period (say 10 years) would almost certainly result in another windfall.

#### Increase in the YMPE under the Canada Pension Plan

A second windfall is accruing because of the "catch-up" provision by which the YMPE is rising at 12 1/2 per cent per annum until it reaches the average wage index. In this case the employer receives the windfall at the expense of the employee earning above the YMPE with the benefit step rate method. This is because reductions in the employee's contribution to the employment pension plan were based on the YMPE in effect in each year of contribution. The reduction in benefits on the other hand is based on the average YMPE in the three years just prior to retirement. While the YMPE is growing at 12 1/2 per cent per year the employment pension full formula will only apply at retirement to earnings above a much higher average YMPE. Thus each increase of \$1,000 in the YMPE would cause a reduction in the pension of an Ontario civil servant of  $.7\% \times 14 \text{ years} \times \$1,000$  or \$98 a year (before retirement in 1980). The total pension income of the employee would be greater since he or she will gain an extra \$250 from the CPP, but the balance of contributions and benefits in the company plan is disturbed. If the YMPE were increased suddenly and substantially, an employee who contributed in the past on earnings above the YMPE might obtain no pension on earnings above the YMPE. In that event, an amendment to the pension plan preserving past benefits and providing for a new start to the integration formula would be needed.

#### Increase in OAS or CPP Benefits

If CPP benefits were increased from the present 25 per cent to 40 per cent (for example) there would be no change in the pension in a step rated plan or an ineligible earnings plan. However, a deduction would occur in the pension from a benefit offset plan, and the employee would not gain the full amount of the CPP increase. The same is true for an increase in the OAS pension. Where the increase in the payment from

the OAS or the CPP is merely by the adjustment to the increase in the Consumer Price Index, the Ontario Pension Benefits Act prevents any reduction in the employment pension for pensions in payment on and after September 15, 1976.(11) Otherwise the employer would benefit every time the government payments were adjusted to the cost of living.

### Benefit Offset Integration

This method of integration can be divided into two types:

- a) proportional offset: the amount of offset in the benefit is related to the number of years the employee was in the employment pension plan; and
- b) non-proportional offset: the benefit from the plan is directly reduced by the amount of government payment received without reference to years of membership in the employment pension plan whose benefit is reduced.

The non-proportional offset is inequitable for the employee who has more than one employer, because the benefit from each employment pension plan is directly reduced by the amount of payments from government programs. Even if the offset is only part of the CPP or OAS payment an inequity will exist. The windfall to the employer is clearly unjust, and several briefs to the Commission recommended a prohibition of this type of integration.

### LEGISLATIVE SAFEGUARDS

The Ontario Pension Benefits Act recognizes integration in Section 21(2):

"If a pension plan so provides, an employee may on or before attaining normal retirement age as defined by the plan, elect to receive an annuity the amount of which is varied by reference to benefits payable under the Old Age Security Act (Canada) or under any other pension plan administered by the Government of Canada or by the government of a province of Canada."

This recognition, however, is for a "notched option" described above, and does not refer to the methods of integration which have developed primarily since the introduction of the CPP.

Section 22(3) of the act took into the account the effect of the Canada Pension Plan.

"No amendment of a pension plan consequent upon the coming into force of the Canada Pension Plan shall adversely affect the pension benefit credits of any member in respect of remuneration and ser-

vice or membership in the plan prior to the 1st day of January, 1966."

The only other regulatory reference is in Regulation 22 referred to above which prohibits reduction for increases determined by reference to the Consumer Price Index. The act is otherwise silent as to methods and results of integration.

#### THE COMMISSION'S POSITION

In general, integration of employment pension plans with government programs may be seen as a logical step in the provision of retirement income, especially if the goal is a specific level of total income from both private and public sources. Integrated programs may avoid excessive overall replacement ratios, and at the same time achieve a reasonable degree of equity among employees in various categories: low and high-paid, long and short-service - at least in so far as benefits are concerned.

Not all integration formulas are fair, however, especially in the manner costs are shared between the employer and employees; nor is it always possible for the individual member to judge whether or not a particular formula is equitable, or even understand how it is likely to affect his or her eventual pension. We are of the opinion therefore that further legislative protection is needed. This is especially so if increases are made in either OAS and CPP benefits or, in the case of the CPP, contribution rates are increased or the YMPE levels are increased beyond the present catch-up increases up to the AIW.

The windfall created by the introduction of the CPP is now declining and is probably acceptable to employer and employee alike. Other windfalls, whether created by the operation of a formula reduction, an increasing YMPE, or a direct offset, must be judged against one principle - will the employee receive what he or she is paying for?

Looking at the application of the benefit step rate method with a rising YMPE we find that the employer is getting some windfall at the expense of the employee, but that at the present time the increased amount of CPP will offset the reduction in employment pension.

If the YMPE or CPP benefits or the OAS were to increase sharply in the future, a further windfall would be created. In that event legislation should protect benefits accrued prior to such changes. Section 22(3) of the Pension Benefits Act should be amended to replace the concept of "adversely affecting pension benefits," which requires a measurement of "adversely," with a definite protection of accrued pension benefits, first up to January 1, 1966 when the CPP came into force and secondly up to the time of any new amendment affecting the benefit levels of the CPP. The act should make it clear that an integration



formula must not operate so as to reduce a person's accrued benefits - or in a way that would reduce the value of employee contributions either before or after any CPP amendment.

Finally, the windfall to the employer from the direct benefit offset, where the offset is not proportional in some way to the contributory period with the employer, offends the principle of protection for the value of the employees' contributions. The statistics show that there are over 71,000 plan members in the combined private and public sectors in Ontario who are subject to benefit offset integration. Those affected by the non-proportional offset may receive very little in excess of the government benefits to show for their contributions to employment pension plans.

The Old Age Security pension differs somewhat from the CPP because it is paid out of general government revenue rather than by a payroll tax or contributions. Thus it is not as easy to assess its value in terms of employee contributions. The Commission therefore would recommend that direct benefit offsets be prohibited for all future increases in the benefit levels of OAS whether or not they are linked to the Consumer Price Index.

Canada Pension Plan benefits enter into integration mechanisms in a great variety of ways, many of which appear to aim at maintaining a reasonable balance of interest as between employer and employee and among members in various age and earnings categories. Some integration methods, however, are demonstrably unjust. Accordingly, the Commission is prepared to recommend the explicit prohibition of non-proportional offsets in respect of any increase in benefits provided through future amendments to the Canada Pension Plan; this provision would be in addition to the existing protection of benefit increases arising from price or wage indexing (in Regulation 654, s.22).

Because it is unlikely that OAS or CPP levels will increase in the near future the Commission does not see a need for phasing in these regulatory measures. There will be time for employers to amend their plan formulas to reflect a different method of integration. Similarly, since the YMPE is calculated to meet the AIW about 1985, no further windfall gain from the rising YMPE should be allowed to the employer after that point is reached.

While the Commission sees no need at present to prevent the general use of integration methods other than those mentioned above, it is concerned that some specific formulas may operate - unintentionally perhaps - in such a way as to yield inequitable results for some employees either now or in the future. The same may be true of certain alternative pension calculations (e.g., minimum pension formulas) which could have an effect similar to that of a prohibited type of offset. For immediate purposes it is possible only to establish the most obvious criterion for such arrangements: that the employee's accrued rights



should be protected in all cases against offsets for future improvements in public plans. Further measures to deal with inequities in this grey area of employment pensions should be the subject of careful study by the Pension Commission of Ontario.

If the government sees fit to adopt the mandatory plan recommended by the Commission there should be no reason to limit the employer's right to integrate the employment pension plan with that system, provided all pension benefit credits accrued to the time of the commencement of the mandatory plan are protected under the Pension Benefits Act. Because the mandatory plan is a defined contribution plan the integration will be through the contribution formula and no inequities should arise out of integration.

The Commission therefore recommends that:

1. For existing plans, reduction in benefits by reference to any increase in the level of Old Age Security payments, whether or not for increases related to the Consumer Price Index above the levels set at the end of December 1979, should be prohibited.
2. For new plans, reduction in employment pension plan benefits by reference to any benefit from Old Age Security should be prohibited.
3. Non-proportional methods of benefit offset integration should be prohibited by the Pension Benefits Act for all new plans, and for all existing plans should be prohibited for all pensions commencing on or after the date of coming into force of this legislation.
4. For all amendments to the CPP coming into effect after January 1, 1980 resulting in a direct increase in benefit levels or increased employee contribution rates, integration by any method should be prohibited if it would have the effect of reducing the pension benefit to less than the value of the employee's benefits accrued in the employment pension plan to the date of such amendment, or the value of employee's contributions, whichever is greater.
5. For all increases in CPP benefit levels resulting from an increased YMPE after the year in which the YMPE equals or exceeds the Average Industrial Wage, integration by any method should be prohibited if it would have the effect of reducing the pension benefit accrued in the employment pension plan to that date to less than the employee's benefits accrued to that date or the value of the employee's contributions, whichever is greater.

6. Integration of employment pension plan benefits with the mandatory plan recommended by the Commission should be permitted, provided that pension benefits accrued to the commencement of the mandatory plan shall not be reduced by any payment from the mandatory plan.
7. For all plans, steps should be taken after an appropriate study by the Pension Commission of Ontario to ensure that any pension integration formula is consistent with the principle that the accrued rights of each employee be preserved, and that its operation is adequately explained to all plan members.

## NOTES

- (1) Statistics Canada, "Pension Plans in Ontario, 1978," unpublished.
- (2) For example, Queen's University operates a money-purchase plan with a defined benefit guarantee. (Brief 227, p. 3.)
- (3) Ontario Pension Benefits Act, sections 21(1) and 1(1)(e).
- (4) Letter, January 30, 1976 from Donald S. Macdonald, Minister of Finance, to W.W. Potter, Executive Vice-President, Trust Companies Association of Canada.
- (5) The Canadian Life Insurance Association, Brief 94, p. 8.
- (6) Dominion Foundries and Steel Limited, Brief 129, pp. 17-19.
- (7) See: James E. Pesando, Private Pensions in an Inflationary Climate: Limitations and Policy Alternatives (monograph), revised ed., January 1979, pp. 53 ff.
- (8) This point was made in Brief 164, Hamilton Civic Hospitals, Quarter Century Club.
- (9) Ontario Confederation of University Faculty Associations, Brief 188, pp. 14-19.
- (10) The Anglican Church of Canada (Brief 220) argues that eligibility for survivor benefits should not be lost by divorce. This might create some very complex situations for the employer and the plan member unless the parties settled pension rights between them as part of the divorce proceedings.
- (11) O. Reg. 654, s. 22, effective September 14, 1976.

## LIST OF TABLES

Table 1 - Benefits to Survivor on Death of Employee Before Retirement by Sector, 1972, 1976, and 1978, Ontario	276
Table 2 - Benefits to Survivor on Death of Pensioner After Retirement by Sector, 1972, 1976, and 1978, Ontario	278
Table 3 - Percentage of Total Income Assessed by Source for Persons Age 65 and Over, Canada, 1976	281
Table 4 - Examples of Total Pension Income without Integration	287
Table 5 - Step Rate Integration - Example of Contributions and Benefits	292
Table 6 - Type of Pension Plan and Method of Integration with Canada Pension Plan in Ontario Private Sector, 1978	294

## LIST OF FIGURES

Figure 1 - Effect of Stacking (No integration)	289
Figure 2 - Effect of Full Integration	289
Figure 3 - Effect of CPP Integration	290
Figure 4 - Effect of Partial CPP Integration	290
Figure 5 - Windfall Arising from Step Rate Integration	291



## Chapter 12

# Recommendations for Employment Pension Design

### CHAPTERS 8 TO 11 REVISITED

In the preceding four chapters we have looked at some of the difficulties arising from existing pension plan design as part of our assessment of the effectiveness of current retirement income arrangements in Ontario. In summary we have found:

1. At least a million and a half workers in Ontario have no access to an employment pension plan and have not elected to institute an RRSP. On the basis of past experience it is unlikely that coverage in employment pension plans will exceed 50 per cent in the foreseeable future.
2. Job mobility in Ontario is such that with existing arrangements for portability there is only a fair probability that members of a pension plan will receive a significant amount of pension at retirement. Existing or earlier vesting rules will not provide complete portability. Portability itself is a counsel of perfection except in a homogeneous, universal plan.
3. Pensions of terminated employees are often paid for by employee contributions alone in a contributory plan, and suffer most from inflation and lack of improvements when they are locked in between termination and normal retirement age.
4. The defined benefit plan design, particularly with a final or best average formula, provides the best pension for a long service employee; but it involves inter-worker subsidies between long and short service workers and between young and old workers. Its complexity prevents the plan member from having

a clear understanding of the subsidies, the group funding principle, or (in a contributory plan) the relationship of contributions to the cost of benefits.

5. The deferred wage concept is not wholly recognized in any of the existing plan designs except where there is immediate vesting.
6. Funding of defined benefit plans is complex and subject to problems arising from the need to forecast the future for investment returns, inflation, mortality, and terminations. The range of permissible judgments in the forecasting and the consequent potential for error has lead to concern about the soundness of funding. Even where funding is satisfactory on a going concern basis, which assumes the continuance of the plan, the fact that the employer can decide to terminate the plan at any time means that not all benefits are likely to be funded at the time of windup, and some promised benefits (in extreme cases, vested benefits) will not be paid. The complexity of the funding, even if details are disclosed, prevents the plan member from being able to assess the financial soundness of the plan.
7. Inflation has led to experience deficiencies in many final or best average plans. Career average plans which have not been updated have fallen behind in the value of benefits, and this has raised serious questions about the real value of employees' contributions locked into such plans. Inflation has also brought pressure for indexing of post-retirement benefits. As such indexing may not be pre-funded, it either creates more difficulties for the distribution of assets on plan termination or misleads plan members into assuming more inflation protection than actually is provided.
8. Survivor benefits for spouses are a necessary feature, but are not uniformly available in existing pension plans. Some plans do not provide for payment of interest on employee contributions where refunds are made on death before retirement.

In the Commission's opinion the answer to these difficulties is a change in the philosophy underlying employment pension design and the use of government authority for the protection of all workers in Ontario.

The necessary change in approach is away from group responsibility and toward individual responsibility in the provision of retirement income through employment pensions. This shift would reflect not only individualism but a recognition that cost subsidies among members of a group are no longer as acceptable as they were in the 1960s, perhaps because of an increased awareness of the long-term effects of such

subsidies. At the same time there is a new concern about the cost of providing retirement income in the future and the need to control cost and relate it specifically to the benefit. This concern has increased with the realization in the late 1970s that resources were not unlimited, and a continuation of rapid economic growth could not be assumed.

A change from group to individual responsibility is timely. The obvious advantage of the group approach is that it permits immediate protection for some members. It was the application of that principle which enabled the Canada Pension Plan to pay full benefits after a transitional period of only ten years. Similarly in defined benefit employment pension plans, benefit entitlements are created which far exceed the value of employee contributions for some long-service workers. Today, CPP benefits coupled with those from other government programs provide an adequate base (except for some single persons) upon which a new type of private retirement income provision can be built. Thus, with immediate and urgent retirement income needs satisfied we can turn our attention to a pension design which will allow individuals to build up their own retirement income over longer periods of time than was formerly possible.

The Commission is therefore recommending the institution of a mandatory retirement savings plan on an individual account basis for all workers in Ontario between the ages of 18 and 65. Such a scheme would be superimposed on the OAS and CPP programs and would constitute a savings level of retirement income. Its aim would be a pension based on earnings up to the Average Industrial Wage. It would not interfere with the continuation of existing employment pension plans, which, it is hoped, would continue to provide retirement income - although on a more voluntary and somewhat improved basis. Opting-out of the mandatory plan would be permitted in certain circumstances.

The proposed mandatory plan has many advantages:

1. It provides coverage for that part of the work-force which at present has no access to employment pension plans, and includes part-time and seasonal workers. This is a most important advantage, since no adjustment of voluntary pension plans can achieve this coverage.
2. It provides a direct and visible relationship between benefit and cost to the worker, and a predeterminable, fixed cost to the employer.
3. It makes retirement income provision the responsibility and entitlement of the worker through immediate vesting and complete portability, and permits the contributor to see the growth of the individual account created by both employer and employee contributions.



4. It moves away from the concept of a pension as a long-service reward and toward that of deferred wages - a change we believe is necessary in light of increasing job mobility.
5. It prevents the loss of pension assets through individual termination and cash withdrawal.
6. It affords the individual an opportunity to participate in the investment of his or her account.
7. It permits the encouragement of employment pension plans to develop along lines determined by collective bargaining with a minimum of government regulation.
8. It will cause employees to re-examine existing pension arrangements. Employers will consider whether they wish to opt out of the scheme or whether plans should be changed.
9. It provides full funding on an immediate and continuing basis.
10. It allows the individual to benefit from increases in nominal interest rates as a measure of pre-retirement inflation protection and also, through the participating annuity option, to obtain some protection of purchasing power after retirement.
11. It removes uncertainty about pension entitlement in periods of broken service, whether through sickness, unemployment, or short service; and it involves no subsidy from the less fortunate to the more fortunate.

In many respects one could argue that the Canada Pension Plan has most of the same advantages without the need for another cumbersome system. But the difference between what the Commission recommends and increasing benefits under the CPP is major and crucial. This difference is in the cost-benefit relationship and the funding. We have considered the problems of virtual pay-as-you-go funding in the CPP and the inherent dangers of inter-generational funding with a declining birth rate and we are very much opposed to any increase in CPP benefits, which can only serve to compound the existing funding and subsidy problems. The CPP is serving a specific purpose and its design is entrenched. Any improvements in the delivery of retirement income must come from a design which requires full and immediate funding.

There are certain admitted difficulties in implementing a mandatory retirement savings plan. The chief objection to our recommendations will be the additional cost to the employer - in particular, the small, marginal employer. Here the most common reasons for not instituting a pension plan have been the administrative expense and the fact that competitors without plans would have a competitive cost advantage. Neither of these problems will arise in the mandatory plan we propose. For



those employers already sponsoring plans the opting-out provisions will provide relief from additional cost. The opportunity for opting-out is important in order to encourage the continuation of existing plans and also because other recommended improvements for these plans, such as earlier vesting, will result in additional costs to these employers.

A second objection which may be raised is that the mandatory scheme, based on money-purchase, will provide an inferior benefit to the defined benefit type. This is true at least in the early stages, as we have pointed out, for the long-service employee. However the advantages of the individual account over the defined benefit for most workers are patent. In any case the defined benefit plan, with recommended improvements, should continue in the fourth level of retirement income provision with greater emphasis on meeting needs of specific employers and employees.

The proposed method of administration may also give rise to some objections. The idea of a central pension agency in Ontario has not been favoured in the past. However, we feel that such an agency will serve as a control on the private pension facilitators who stand to benefit from additional pension accounts to administer. It could also perform a useful distributive function, similar to that provided for the CPP by Revenue Canada. Administrative questions also encompass uniformity. Our proposal affects all workers in Ontario. Interprovincial migration of workers, particularly with the opting-out provisions, will create difficulties. But difficulties arising from migration are not new and should be capable of resolution through co-operation among the provincial regulatory authorities.

The rest of this chapter is devoted to a detailed explanation of the mandatory retirement savings plan recommended by the Commission. We have designated this plan "Provincial Universal Retirement System" (PURS) throughout the discussion. Recognizing the cost effects of the introduction of PURS for employers who already have pension plans, we present alternative recommendations for those plans depending on whether or not PURS is adopted. For example, if PURS is adopted we recommend a ten-year vesting rule for all employment pension plans; if PURS is not adopted we recommend a five-year vesting rule. These alternatives are set out in full at the end of the chapter. In addition, however, there are other recommendations for improvement in existing plans whether or not PURS is adopted. These recommendations appear throughout the text. For example, the recommendations for "Rights on Termination" at the end of Chapter 8 are to apply regardless of any action on the PURS recommendations.

#### PROVINCIAL UNIVERSAL RETIREMENT SYSTEM (PURS)

The Commission envisages PURS as a mandatory plan superimposed on the OAS and the CPP. We refer to it as a "savings" level in pension

planning. We see the continuance of existing employment pension plans and the development of new ones to accommodate particular needs of groups of employees for retirement income. Employers will still wish to provide pensions related to earnings above the AIW, and may wish to provide benefits in addition to those available in a universal plan. Thus, there will continue to be room for innovation in such benefits as early retirement and indexing, and for implementation of various design features arrived at in collective bargaining or desired by the employer.

Two important factors in the relationship of PURS to other elements of retirement income should be noted:

- Because PURS is a money-purchase plan it will benefit from high nominal rates of interest in an inflationary period (the inflation dividend) but it will suffer erosion once pensions are in payment if inflation continues. Therefore it is important that serious consideration be given to our recommendations in the chapter on inflation so that through the fully-indexed OAS and CPP, PURS and some type of inflation protection, the selected per cent of the AIW provided through government initiatives can be maintained in its purchasing power as far as possible.
- We recommend a right to limited opting-out from PURS for those employers already having pension plans, many of them with better benefits than PURS. The Commission has many reservations about the equity of design in a defined benefit plan and is particularly reluctant to see more problems created such as those which currently plague the Canada Pension Plan. It has therefore selected a money-purchase or individual account approach for PURS, and requires a guaranteed money-purchase element in any defined benefit plan that is to qualify for opting-out. For this reason there must be a suitable length of time for the phasing-in of PURS to allow employers to adjust their fourth level plans accordingly, and to allow those employees who are already well into their careers (for whom the PURS plan will never mature) to obtain proper benefits from their present plans. Employers who do not have plans at present should be obliged to contribute to PURS as soon as it has been set up. Coverage then will be provided without delay for those who are not now in any pension plan.

### Objectives

1. TO PROVIDE A SUM OF MONEY WHICH WILL PURCHASE ON RETIREMENT A PENSION ANNUITY EQUIVALENT TO THAT PERCENTAGE OF THE AVERAGE INDUSTRIAL WAGE AT THE TIME THE CONTRIBUTOR REACHES AGE 65 WHICH TAKEN WITH OAS AND CPP WILL PROVIDE A REASONABLE NET REPLACEMENT RATIO TO PRE-RETIREMENT INCOME.

The plan is earnings-related and would be limited to a pension based on earnings up to the Average Industrial Wage on the ground that government interference is not needed to protect either individuals or society for income replacement of more than say, 65 per cent of that amount. The exact percentage which a mandatory plan should provide should be derived by reference to net replacement ratios with the aim of providing "available income" that is reasonably related to pre-retirement income. For example, the first three levels of retirement income design might provide for a worker at the Average Industrial Wage:

OAS	10-14 per cent of AIW
CPP	25
PURS	<u>25-30</u>
	60-69

If the spouse's OAS is taken into account, a married couple, one of whom worked at the AIW, would then be assured a gross payment of 75 per cent of the AIW. This would develop net replacement ratios exceeding 100 per cent on the "available income" basis. Sixty-five to 75 per cent is the range usually considered suitable for replacement income.(1) Both CPP and PURS would increase in step with the AIW. It is not expected that the OAS will increase other than through price indexing; accordingly, OAS will decline in relation to the AIW from its present 14 per cent to about 10 per cent after 2000. In determining the correct amount for PURS, net replacement ratio calculations similar to those made by the Commission for government plans should be used. These ratios may exceed 100 per cent at lower wage levels.(2)

2. TO EXTEND COVERAGE TO ALL WORKERS IN ONTARIO SO THAT THROUGH OAS, CPP, AND PURS SUFFICIENT OPPORTUNITY WILL BE AVAILABLE TO ALL THOSE IN THE COVERED WORK-FORCE TO PROVIDE REASONABLE RETIREMENT INCOME PROTECTION THROUGH INDIVIDUAL INITIATIVE.

The Commission has been concerned throughout that individuals have not had the opportunity nor the resources to provide reasonable income replacement in retirement for themselves. The GIS, which was designed to assist those not under the CPP and those who were unable to build full-term credits under the CPP, has not been decreasing in scope as quickly as was intended. Inflationary pressures have placed many more persons who had been in the work-force on the GIS rolls, at least for partial benefits, than originally anticipated. Among them are many whose private savings have been so eroded by inflation that they are "needy" within the meaning of GIS and GAINS programs. This situation, in the Commission's opinion, is not healthy either for the economy, involving as it does increasing government transfer payments, or the psychology of individuals in their attitudes toward saving for retirement income. Therefore the Commission sees justification for the use of



government intervention to provide workers with the opportunity to accumulate sufficient retirement income. The GIS and GAINS programs will then decline in importance as originally intended so that they provide a minimum retirement income only to those who, for various reasons, were never in the covered work-force or were not employed long enough to earn an adequate retirement income.

Existing employment pension plans have done a great deal to provide the additional income required to assist individuals in planning for retirement. With encouragement they could do more. However, both the government and the private pension industry must acknowledge that as long as the establishment and continuance of private plans are voluntary the coverage problem will remain. Our coverage study and the Consumer Survey both indicate that about half the work-force is covered by private plans. RRSP utilization has grown dramatically, but we have seen that despite this growth a million and a half workers in Ontario have neither employment pension coverage nor an RRSP. Those who are least likely to have an alternate retirement income vehicle are the persons most likely to become dependent on GIS and GAINS for their income in the future. These are: part-time workers, women (and some men) who have broken work patterns or short service in the work-force, those in small firms, employees in retail trade, and self-employed persons (other than professionals).

It is clear to the Commission that very few people in those categories will be brought into employment pension plans as matters stand today. Small employers who operate on small margins simply cannot afford to assume voluntarily the cost of a pension plan and thereby give their competitors an edge, however much they may want to help their employees. The availability of the RRSP has obviously not changed the situation for those at or below the Average Industrial Wage; no doubt present consumption leaves little money available for retirement saving. From our vesting study moreover, we have seen that workers shown as members of employment pension plans in statistical surveys will not necessarily receive pension benefits. Therefore, in the Commission's opinion, effective coverage can be ensured only by a mandatory scheme.

### Eligibility

THE COVERED WORK-FORCE WILL BE IDENTICAL TO THAT NOW COVERED BY THE CANADA PENSION PLAN. THUS, VIRTUALLY ALL WORKERS AGE 18 to 65, INCLUDING SELF-EMPLOYED AND PART-TIME WORKERS, WILL BE COVERED FROM THE FIRST DAY OF WORK ON ALL EARNINGS BETWEEN THE YBE AND YMPE AS ESTABLISHED FOR THE CPP. COVERAGE WILL BE COMPULSORY FOR ALL SUCH WORKERS.

Use of the CPP contributor base is recommended by the Commission primarily for administrative reasons. Our coverage study shows that about 97 per cent of paid workers and self-employed persons in Ontario have been covered by the CPP between 1969 and 1976.



The Commission received some evidence that it was possible to accrue a suitable pension over a period of 25 to 30 working years and that therefore persons should not be required to join pension plans before age 35 or 40 (assuming a retirement age of 65). That position assumes, however, that the worker stays with the same employer throughout that period and (probably) receives a pension based on a defined benefit. The Commission's concern is for the broken service employee and the mobile employee who would not have the opportunity for pension accrual on this basis. In addition, PURS is on a money-purchase basis where the longer money is invested the greater will be the benefit of compound interest. The Commission therefore is of the opinion that possible unfavourable reaction by those at young ages towards compulsory contributions at age 18 will be offset by the individual's opportunity to see the growth in his or her own individual account as savings for retirement. Those with interrupted work patterns will still not receive the full PURS expectation and therefore it is important that all work experience be covered as it is for the CPP.

### Funding

THE SYSTEM WILL BE BASED ON A MONEY-PURCHASE, INDIVIDUAL ACCOUNT, DESIGN AND WILL BE FUNDED BY CONTRIBUTIONS OF BOTH EMPLOYERS AND EMPLOYEES MADE BY PAYROLL DEDUCTION.

The Commission had estimates prepared of the rates of contribution required to ensure a pension annuity of 30 per cent of the AIW on retirement. The estimates were based on the Commission's most probable economic assumptions used throughout its studies. We also include estimates for lower percentages of the AIW for comparative purposes. Careful consideration of the effect on total pension costs for both employer and employee will have to be given in setting the percentage of the AIW to be secured. The net replacement ratio analysis is a useful tool for this purpose. The Commission believes that contributions should be set at the lowest possible percentage commensurate with providing a reasonable net replacement ratio, taking into account retirement income from government programs and PURS sufficient to allow continuance of pre-retirement living standards into retirement. To maintain this minimum approach will then permit employees to supplement their retirement income needs in ways suitable to individual desires and will permit employers to develop additional retirement income arrangements as they see fit.

Following are the percentages of pay required from a person age 18 in 1983 to provide the stated straight life annuity alternatives, under the Commission's most probable assumptions and assuming the worker's earnings are at the level of the Average Industrial Wage (AIW) throughout:

Table 1

Contribution percentages, for level life annuity of	Male(a)	Female(a)
	(Per cent)	
20 per cent of final year's pay	3.52	4.15
25 per cent of final year's pay	4.41	5.19
30 per cent of final year's pay	5.29	6.23

a Retirement age 65; retirement on January 1, 2030.

It should be noted that the accumulation of contributions and interest for these calculations assumes a conservative real rate of return on investment. Any increase above this rate would result in greater benefits. Hence the worker will gain directly from higher yields.

In determining the proportions in which the cost of PURS should be shared the Commission recommends that consideration be given to grading the employee's contributions by age to recognize that present consumption often takes priority over saving at younger ages. Employee contributions therefore could vary in the following manner:

Age 18 to 30 - 1 per cent up to the YMPE  
 30 to 45 - 1 1/2 per cent  
 45 to 65 - 2 per cent

To prevent age discrimination the Commission recommends that the employer contribution be a constant percentage - for example, 2 per cent - of wages up to the YMPE.

Using the above contribution rates and calculating the eventual annuities on the same basis as before, the plan would produce pensions at the levels shown in Table 2.

Table 2

Annuity as per cent of AIW in year prior to retirement	Male(a)	Female(a)
	(Per cent)	
	20.8	17.7

a Retirement age 65; retirement on January 1, 2030.

In both sets of calculations the annuity ceases on the death of the retiree, i.e., there is no continuation to a spouse or other person and no minimum guaranteed period of payment; the amount of annuity is determined at retirement and is not indexed.

Both Tables 1 and 2 show separate annuity calculations for male and female lives. Since legislation would be used to institute PURS, the Commission believes it should reflect relevant public policies by requiring PURS annuities to be calculated on a unisex basis. Details of this recommendation will be found in Chapter 11. The options for escalating and participating annuities recommended in that chapter should also apply to PURS.

One of the weaknesses of any money-purchase plan is that the holder may be obliged to purchase an annuity at unfavourable rates merely because interest rates are low at the time of retirement. The Commission therefore recommends that some flexibility be built into the PURS structure, giving the holder the option of purchasing part of the annuity prior to retirement to allow some smoothing of interest rates and hence annuity cost. For example annuities might be purchased within a period of three years before although payable at age 65, and up to three years after retirement. Some protection against multiple fees would have to be worked out through regulatory control.

#### Portability, Vesting, and Locking-in

ALL CONTRIBUTIONS, BOTH EMPLOYEE AND EMPLOYER, WILL BE IMMEDIATELY VESTED AND LOCKED-IN, WITH A REFUND OF EMPLOYEE'S CONTRIBUTIONS MADE AVAILABLE TO THOSE BELOW THE YBE. EMPLOYER CONTRIBUTIONS FOR THESE EMPLOYEES WOULD BE ALLOCATED TO ADMINISTRATIVE COSTS. ALL OTHER EMPLOYER CONTRIBUTIONS ARE ALLOCATED DIRECTLY TO THE EMPLOYEE'S INDIVIDUAL ACCOUNT AND ARE FULLY VESTED IMMEDIATELY. ALL MONIES ACCRUING IN INDIVIDUAL ACCOUNTS ARE COMPLETELY PORTABLE.

This design again follows the CPP in providing immediate vesting and locking-in. This is particularly important to employees with broken employment patterns who might never accrue any pension benefits under existing employment pension plans, even with vastly improved vesting rules. PURS also covers part-time workers to the extent they are employed. Job mobility is not hampered by fear of losing pension rights. Locking-in is justified on the basis that the scheme is purely to provide pensions. In addition, the individual alone will benefit from the accumulating account, and will have some control over its investment.

#### Plan Features

##### a) Annuity

Monies accrued up to age 65, when contributions cease, will be available any time until the contributor's 71st birthday for the purchase of a life annuity. No cash withdrawal will be permitted except when the annuity would be a minimal amount. The contributor, subject to spouse rights, will have the option of various



types of annuity guaranties as well as access to the escalating and participating annuity types.

b) Spouse Rights

Where the contributor is married at the time of purchasing the annuity, the annuity option selected must provide for at least a 60 per cent survivor benefit for the spouse, unless the spouse waives such protection in writing. "Spouse" will have the same meaning as under the CPP.

c) Death Benefits

If the contributor dies before withdrawing the funds from the account, the estate will succeed to the total amount of the account subject to the spouse's rights recommended in Chapter 11.

These features preserve a symmetry with the OAS and the CPP with regard to age of eligibility and form of benefit. The spouse is protected against the early death of the annuitant but the protection can be waived by the spouse. The Commission recognizes that there may be circumstances in which a survivor benefit for the spouse is not necessary or appropriate. The basic goal of providing retirement income for life is maintained throughout.

Deposit Vehicle

THE CONTRIBUTOR MAY CHOOSE THE FINANCIAL INTERMEDIARY TO RECEIVE AND INVEST HIS OR HER CONTRIBUTIONS AND THOSE OF THE EMPLOYER. THE CONTRIBUTOR MAY CHANGE THE FINANCIAL INTERMEDIARY FROM TIME TO TIME BUT SHALL HAVE ONLY ONE ACCOUNT AT ANY ONE TIME.

Financial intermediaries could include trust companies, life insurance companies, credit unions, and investment managers resident in Ontario. Where the contributor does not select a financial intermediary, the funds would be deposited with a Central Pension Agency for Ontario, which would be empowered to invest the funds it receives. Such an institution, however, would be an agency of last resort, since it is likely that most contributors would choose a private financial intermediary where investment policy might be less conservative. It is not the Commission's intention to encourage another institution with the power of Quebec's Deposit and Investment Fund. PURS accounts would be operated by all financial intermediaries, according to a format designed so as to avoid confusion with the existing RRSP system.

The Commission is of the opinion that the contributor should be free to choose the financial intermediary and as far as possible to direct the investment of funds within the rules for eligible investment. This will go some way toward answering the criticism of employees whose contributions are now locked into pension plans of former employers with



low rates of return. There would have to be some limitation on the frequency of changing financial intermediaries; once a year might be reasonable. There would also have to be some control on the size and structure of the fees intermediaries could charge for handling the accounts.

### Investments

FUNDS WOULD BE INVESTED IN THE SAME KINDS OF INVESTMENT NOW PERMITTED FOR PENSION FUNDS IN ONTARIO EXCEPT THAT FOREIGN INVESTMENTS WOULD BE EXCLUDED.

The Commission feels strongly that investment funds are needed to develop the Canadian economy and that requiring investments to be kept in Canada would not be too restrictive. Where funds are pooled for investment by the intermediary, rules governing the percentage to be placed in various classes of investment (such as now provided under the Pension Benefits Act) should be applied. Self-administered investing by individual contributors would not be permitted as it is now for RRSPs until experience with the operation of the plan indicates whether this extension would be feasible.

### Administration

CONTRIBUTIONS BY EMPLOYEES SHOULD BE MADE BY PAYROLL DEDUCTION AND SUBMITTED WITH EMPLOYER CONTRIBUTIONS EITHER DIRECTLY TO THE CENTRAL PENSION AGENCY IN ONTARIO WITH THE NECESSARY INFORMATION FOR ALLOCATION TO INDIVIDUAL ACCOUNTS OR THROUGH REVENUE CANADA (TAXATION) IN A FASHION SIMILAR TO THAT FOR CPP CONTRIBUTIONS. FUNDS WOULD BE CREDITED TO THE CONTRIBUTOR'S INDIVIDUAL ACCOUNT VIA SOCIAL INSURANCE NUMBER AT THE CENTRAL PENSION AGENCY OR AT THE DEPARTMENT OF NATIONAL HEALTH AND WELFARE AND THE FUNDS WOULD THEN BE REMITTED TO THE FINANCIAL INTERMEDIARY FOR INVESTMENT.

The CPP collection arrangements have proved efficient and not unduly costly. An arrangement for similar collections for PURS would be desirable to avoid a great deal of additional paperwork. Health and Welfare Canada already has CPP records by social insurance numbers which might be utilized. However, if such arrangements are not possible, contributions could be remitted to an Ontario Central Pension Agency for recording and allocation among the financial intermediaries. Some of the cost of this operation could be offset by interest earned on monies held for short periods between receipt and allocation, as is presently done for the CPP. Contributions from employees would be deducted from payroll and remitted by the employer together with the employer's contributions. Self-employed persons would have to make contributions directly or through Revenue Canada as is now done for the CPP. Remittance to the financial intermediary for investment should be made at reasonable times, taking into account the administrative expense and the minimal amounts for investment if remittance is too frequent.

Interest could be credited at a reasonable rate on all amounts held by the Central Agency pending remittance for investment.

### Income Tax Deductibility

EMPLOYER AND EMPLOYEE CONTRIBUTIONS WOULD BE DEDUCTIBLE FOR INCOME TAX PURPOSES.

Arrangements would have to be made with Revenue Canada for the deductibility for income tax purposes of all contributions, both employer and employee, within the framework of the deductions now allowed for registered pension plans and Registered Retirement Savings Plans.

### Opting-Out and Integration with Employment Pension Plans

PURS WOULD BE A UNIVERSAL PLAN, BUT OPTING-OUT WOULD BE ALLOWED IN STRICTLY DEFINED CIRCUMSTANCES. COST AND DESIGN CONSIDERATIONS REQUIRE BOTH INTEGRATION WITH PURS AND A FAIRLY LONG PERIOD FOR PURS TO BE PHASED IN FOR EXISTING PLANS.

The Commission is reluctant to discourage the continuation of existing employment pension plans and therefore recommends that an employer with a plan in force at the date PURS becomes effective may opt out of making contributions and remittances to PURS where comparable benefits on a money-purchase basis are guaranteed under the existing pension plan. The nature of the benefit must contain all the features of PURS, except that the employee will not be able to choose the financial intermediary for investment, since the employer will invest the contributions in his own pension fund. In that event, however, the employer must provide some guarantee as to the rate of return on the monies in the employee's individual account and will have to make contributions at the times required for PURS. The comparability of the employer's pension and PURS as to benefits, guarantee, and protection in the event of windup will have to be carefully assessed by the Pension Commission of Ontario. If opting-out on this basis is considered to be impractical then PURS should be obligatory for all employers.

For employers having no pension plan at the time PURS comes into effect there should be no delay in participation.

For employers having pension plans, in particular contributory pension plans, with opting out possible, it will be necessary to allow sufficient time for plan redesign and for provision to protect those who are already well into their working careers. It will also be necessary to allow collective bargaining agreements already in force to expire. The Commission could envisage 1982 for the starting date of PURS and 1984 for the effective date by which it should apply to pension plans now in force. With opting-out, for example, an employee would be entitled to the PURS benefits, plus any benefits accrued in the existing plan to the date PURS became effective for the employee, plus any bene-

fits accrued in the plan above the PURS minimum from the time PURS became effective to date of retirement. Future benefits under existing plans may be cut back so that the total retirement income from government programs, PURS and the employer's plan, will not provide more in retirement than is necessary to maintain a measure of pre-retirement income. Employers will probably wish to re-examine in depth the effectiveness and cost of their own particular plans. The employer who opts out will also have to decide whether to avoid increased labour costs or allocate the monies to provide other benefits such as group insurance.

#### Long-Range Impact of PURS

WHEN PURS MATURES IN FORTY-SEVEN YEARS (18 to 65) IT SHOULD PROVIDE SUFFICIENT PENSION COVERAGE FOR THOSE AT OR BELOW THE AIW TO ALLOW THEM TO ENTER RETIREMENT WITH A SENSE OF ECONOMIC SECURITY.

For those retiring in the meantime, at least some money will have been set aside to provide benefits above those of the existing government programs. It will be visible to the workers and will have the character of a personal asset. A corollary effect will be an immediate reduction in the cost of GIS, since even a modest level of PURS benefits would reduce if not cancel out GIS payments.

Its quickest impact would be to raise the level of long-term savings in Canada. Monies invested through PURS will create more funds available to private undertakings and should thereby assist in moderating interest rates and in building a firm base for private business in Ontario. In assisting development in the private sector, other things being equal, PURS would have a tendency to reduce inflation and to facilitate job creation.

#### PURS in Contrast with the Canada Pension Plan

It may be argued that the goal of maintaining a pre-retirement standard of living into retirement could be met more easily by expanding the CPP, and indeed many unions have urged just that. If the CPP were expanded to 50 per cent of the AIW, all present contributors would get a proportionate increase in pension, not only those retiring after PURS has matured. Benefits would also be fully indexed to cost-of-living increases. An attractive proposal, to be sure, but the costs as well as the benefit must be considered.

The financing of the CPP has already raised serious questions in the pension debate. The contribution rate for existing benefits will have to be raised eventually. If the level of CPP benefits were expanded instead of using PURS the contribution rates would have to be raised still more. PURS, on the other hand, has a level contribution rate and will always be fully funded for each contributor on an individual account basis. The account is visible and is paid for by the individual who will ultimately benefit, not by a complex system of



inter-generational transfers. If PURS is instituted now before CPP contributions must be increased, we will be using the time and the monies saved now to build fully funded benefits for the future.

A number of questions about funding the CPP were asked the respondents to our Consumer Survey. The answers are discussed in detail in the volume dealing with the CPP. The answers regarding the preference for cross-generation funding or generation self-funding are relevant here. Nine-hundred and ninety-eight respondents were asked which of the two methods they would prefer (after each method had been explained).

Cross-generation funding preferred	38.8 per cent
Generation self-funding preferred	47.1 per cent
Don't know/No answer	14.1 per cent

"If the respondents who did not state an opinion were removed from the calculations, approximately 55 per cent of those who did answer prefer generation self-funding and of these, 78.7 per cent stated they would be willing to increase their CPP contributions in order to pay for their own retirement benefits. However, it should be pointed out that this 78.7 per cent represents only 43.1 per cent of all respondents asked the question on funding."(3)

We know there is no such thing as a free pension. The question is who is to pay the cost. The CPP today pays high benefits in proportion to total contributions made by the persons now receiving those benefits. In the unions' view an increased CPP is a "good deal" and therefore a desirable goal. While the overbalance of benefits to contributions today may be fair for today's elderly, who came through the Depression and world wars, it is doubtful if today's younger worker needs to be subsidized by tomorrow's workers. In any case, the cost of paying for the current level of CPP, plus GIS, plus OAS, will be a heavy burden for tomorrow's worker if nothing is done now to change the balance. PURS will allocate the cost of the benefit on an individual basis and will also reduce the cost of the GIS.

Another serious question about the CPP is its effect on savings. CPP does not create long-term savings of the kind a capital-intensive country such as Canada requires. PURS, on the other hand, will serve as a source of long-term savings or capital.

### Conclusion

The Commission has said repeatedly that there is a need for a rational system of retirement income. While the government is committed to the social goal of providing a minimum floor of retirement income for those in need there should be some encouragement given to individuals to provide for their own needs. The tax incentives given for registered pension plans, RRSPs, and deferred profit sharing plans have provided this type of encouragement but they have not proved effective for all



workers in Ontario. The Commission sees PURS as the answer. It is mandatory, and therefore it provides the universal coverage that is needed. It is immediately vested and fully portable. It is funded on an individual account basis so that each person is encouraged to look after his or her own need and is given a vehicle by which to do so. The obligatory contribution from the employer together with the employee's graded contribution represent a cost which is a reasonable amount to set aside from present consumption for future retirement. The employer in turn is assuming a limited and pre-determined cost to discharge an obligation to the employee for retirement income, whether this obligation is seen as a moral one or as deferred wages.

#### ALTERNATIVE RECOMMENDATIONS

Whether or not to institute a mandatory retirement savings plan for workers in Ontario will be a major government decision. If such a decision cannot be made without delay or if the idea of a mandatory plan is rejected outright there are some areas of the existing pension design which require amendment. If PURS is adopted, the extent of amendment which should be made to existing plans is subject to curtailment for cost considerations. Therefore the Commission has developed different recommendations for specific provisions of existing plans depending on whether or not PURS is adopted.

Other recommendations discussed elsewhere in the text would apply regardless of the adoption of PURS. In either situation changes must be phased in over a reasonable length of time to protect existing pension plans from additional costs which are not presently taken into consideration in the funding. For example, interest on refunded contributions where not provided under the pension plan when the change takes effect, might only be calculated for the period after the change takes effect. Similar protections would be necessary where the employer would be required to assume greater responsibility for the deferred life annuities of terminating employees. Care must be taken not to jeopardize the rights of the active members of the plan or the pensioners. Technical decisions as to the length of time required and the method of phasing-in should be under the guidance of the Pension Commission of Ontario which is in the best position to gauge the effect of change on the stability of existing plans. If PURS is adopted however and an employer does not have an existing plan at a designated time, such employer should be immediately subject to PURS as there is no need to delay its operation.

#### Earlier Vesting

If PURS is adopted, the Commission recommends that the minimum vesting rule in existing plans be changed to require full vesting on ten years' continuous service with an employer or ten years' membership in the pension plan, whichever first occurs. Many plans have already adopted a ten-year vesting rule, some have a five-year rule. Much as

the Commission would like to see a uniform move to five years by law, it recognizes that the cost of PURS and the changes in the rights on termination could be substantial for some employers. Therefore if private pension plans are to provide additional retirement income there must be scope for employers to amend their plans and apply the available monies to the provision of additional benefits for their long-service employees. The legislation furnishes a minimum standard and if PURS is adopted there is no justification for legislating too high a minimum.

If PURS is not adopted, the Commission recommends that the vesting rule in existing plans be changed to require full vesting on five years' continuous service with an employer or five years' membership in the pension plan, whichever occurs first.

Once the rule is changed it should be effective retroactively so that those who have already fulfilled the new condition will be fully entitled at the time the change in the Pension Benefits Act takes effect. The benefits vested, as under the present act, would be accrued on and after January 1, 1965 (the "qualification date") or created later by a new plan or a plan amendment.

#### Locking-In

If PURS is adopted and has matured the Commission is of the opinion that ultimately there should be no locking-in of any part of employee contributions to employment pension plans. PURS would provide the necessary retirement income and protection for the GIS. Employment plans can then be placed on an equal footing with RRSPs and Deferred Profit Sharing Plans, where the only limitations on cash withdrawal are the tax consequences. As with other changes if PURS is adopted it will be necessary to provide for protection in the transition period; therefore locking-in of employee contributions cannot be removed immediately.

If PURS is not adopted, the Commission recommends that locking-in continue to be effective simultaneously with vesting. The right to transfer out at least part of the pension value on termination will partially answer criticism from the younger employees who will be locked-in at earlier ages. (See Chapter 8: Recommendations for Rights on Termination.)

#### Eligibility

If PURS is adopted, employers should be free to adopt reasonable eligibility rules for existing plans to suit the particular circumstances. For example, with employment pensions viewed as the optional level of retirement income, we can see higher ages for eligibility with pension accruals from age 35 or 40. However, since PURS is designed to provide a reasonable net replacement ratio on earnings up to the AIW, membership in contributory employment pension plans should be at the option of the employee and not a condition of employment.

If PURS is not adopted, the maximum service requirement for eligibility in an employment pension plan should be two years for those below age 35. Because of the more limited time available for pension accrual after that age, we recommend that those 35 or over be eligible after one year's service. Except for these minimum requirements, age and service requirements may be combined, and the employer may otherwise adjust eligibility requirements to suit the circumstances. While this allows exclusion of those in the younger age groups, we recognize the need for some flexibility in this area to satisfy both employers and the younger workers.

Except for these three specific alternatives all other recommendations for employment pension plans should apply in the form recommended regardless of the adoption of PURS.

## NOTES

- (1) Brief 304, Canadian Labour Congress and Brief 221, Ontario Federation of Labour.
- (2) See for example, the high net replacement ratios for modest annuity income set out in Chapter 8, Tables 6 and 7.
- (3) Consumer Survey, Question 14 a) and b).



